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DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

O. H. TITTMANN

SUPERINTENDENT

TERRESTRIAL MAGNETISM

RESULTS OF MAGNETIC OBSERVATIONS MADE BY THE UNITED STATES COAST AND GEODETIC SURVEY IN 1914

BY

DANIEL L. HAZARD

Computer, Division of Terrestrial Magnetism

SPECIAL PUBLICATION No. 25

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RESULTS OF MAGNETIC OBSERVATIONS MADE BY THE UNITED STATES COAST AND GEODETIC SURVEY IN 1914.

By Daniel L. Hazard,
Computer, Division of Terrestrial Magnetism.

INTRODUCTION.

In 1882 the results of magnetic observations made by this bureau prior to 1881, together with descriptions of stations, were published as Appendix 9, Report for 1881. From that time to 1902 the results were published only in connection with a discussion of the distribution or secular change of one or more of the three magnetic elements. In Magnetic Declination Tables and Isogonic Charts for 1902 declination results were given for all stations occupied up to that time and descriptions were given of the stations occupied subsequent to 1881. From 1903 to 1911 there has been published annually an appendix to the Superintendent's report, giving the results of magnetic observations made during the fiscal year (July to June) covered by the report.

When in 1912 it was decided to confine tne annual report of the Superintendent to administrative matters and to publish separately the scientific results which had formerly appeared as appendices to the report, the time was deemed opportune to change from the *fiscal* year to the *calendar* year in the publication of the results of magnetic observations in the field. Accordingly Special Publication No. 15 contained the results of observations made between July 1, 1911, and December 31, 1912, and Special Publication No. 20 contained the results for the year 1913.

Five magnetic observatories have contmued in operation throughout the year: At Cheltenham, Md.; Sitka, Alaska; near Honolulu, Hawaii; on Vieques Island, P. R.; and near Tuscon, Ariz. Their records have furnished the means for reducing to mean of day the values of declination obtained from the field observations. There will be found in the tables the mean values of the magnetic elements for each of the observatories for the year 1914.

DISTRIBUTION OF OBSERVATIONS ON LAND.

The distribution of the stations on land is shown in the following table, from which it will be seen that observations were made in 36 States and Territories. Numerous old stations were reoccupied in order to determine the secular change of the magnetic elements. Many auxiliary stations were occupied in parts of Iowa and Minnesota where previous observations had indicated the presence of local disturbance. In the case of these auxiliary stations the observing program was very much curtailed, being limited to morning or afternoon azimuth, one set of declination with magnet erect, one set of oscillations, and dip with one needle without reversal of polarities.

Summary of results on land.

State	Localities	Stations	Old localities reoccupied	Declination results	Dip results	Intensity results
Alabama	6	6	2	6	6	6
Alaska	10	21	3	23	4	4
Arizona	2	3	2	5	5	5
Arkansas	10	11	2	11	10	10
California	8	10	6	10	10	10
Colorado	1	1	1	1	1	1
Delaware	1	1	1	1	1	1
Florida	19	22	4	22	20	20
Georgia	14	15	2	15	15	15
Hawaii	1	1	1	2	2	2
Idaho	2	2	0	2	2	2
Illinois	4	4	2	4	4	4
Iowa	20	54	2	52	52	50
Louisiana	7	7	3	7	7	7
Maine	3	3	2	3	3	3
Maryland	1	1	1	11	9	11
Massachusetts	2	2	1	2	2	2
Minnesota	20	45	2	45	40	40
Mississippi	17	19	4	19	18	18
Montana	6	6	0	6	6	6
Nebraska	1	1	1	1	1	1
New Hampshire	6	6	0	6	6	6
New Jersey	16	16	1	16	16	16
New Mexico	2	2	2	2	2	2
New York	8	10	2	10	10	10
North Dakota	3	5	2	5	4	5
Oklahoma	7	7	2	7	7	7
Oregon	9	13	3	13	12	13
Pennsylvania	15	15	4	15	15	15
Porto Rico	1	1	1	2	1	2
South Dakota	16	18	3	18	18	18
Tennessee	3	4	3	4	4	4
Texas	15	16	6	16	16	16
Vermont	10	10	2	10	10	10
Washington	12	15	3	16	15	16
Wisconsin	11	12	3	12	12	12
Total	289	385	79	400	366	370

SECULAR CHANGE OF THE MAGNETIC DECLINATION.

A comparison of the declination results at "repeat" stations occupied during the year with the results of earlier observations in the same localities is presented in the following table. The letter after the name of a station indicates (*a*) that the old station was reoccupied exactly, (*b*) that the new station was very near the old one, and (*c*) that the new station was some distance (a quarter of a mile or more) from the old one. A tabular value of the annual change refers approximately to the middle of the period from which it is derived. A plus sign indicates increasing east declination or decreasing west declination, a minus sign the reverse.

Comparison of declination results at repeat stations.

State and station	Former observation		Last observation		Average annual change
	Date	Declination	Date	Declination	
		° ′		° ′	′
Maine:					
Bangor (*a*)	1910, Au	17 55.4 W	1914, Au	18 16.6 W	−5.3
Portland (*a*)	1910, Au	15 17.6 W	1914, Au	15 47.2 W	−7.4
Vermont:					
Burlington (*a*)	1910, Au	13 18.2 W	1914, Jy	13 38.7 W	−5.2
St. Johnsbury (*a*)	1910, Jy	14 15.0 W	1914, Jy	14 38.4 W	−5.8
Massachusetts:					
Pittsfield (*a*)	1910, Jy	11 50.0 W	1914, Je	12 12.2 W	−5.7
New York:					
Rome (*a*)	1912, Je	9 52.5 W	1914, My	10 03.8 W	−5.8
Potsdam (*a*)	1909, Au	11 37.6 W	1914, Je	12 00.4 W	−4.7
New Jersey:					
Trenton (*a*)	1910, Je	8 35.7 W	1914, Je	8 55.7 W	−5.0
Pennsylvania:					
Easton (*a*)	1910, Je	7 49.2 W	1914, Jy	8 01.8 W	−3.1
Hamburg (*a*)	1910, Se	6 51.1 W	1914, Jy	7 21.3 W	−7.9
Harrisburg (*b*)	1910, Se	7 01.2 W	1914, Au	7 21.9 W	−5.3
Williamsport (*c*)	1912, Je	7 34.4 W	1914, Se	7 46.2 W	−5.2
Maryland:					
Cheltenham (*a*)	1912 year	5 50.0 W	1914 year	5 59.8 W	−4.9
Georgia:					
Savannah (*a*)	1908, Mh	0 30.2 E	1914, Ap	0 20.3 E	−1.6
Macon (*a*)	1905, Fe	2 01.8 E	1914, My	1 56.2 E	−0.6
Florida:					
Fernandina (*a*)	1910, Ap	1 06.2 E	1914, Ap	1 05.1 E	−0.3
Gainesville (*b*)	1900, My	2 15.9 E	1914, Ap	2 08.3 E	−0.5
Tallahassee (*a*)	1908, Ap	2 17.2 E	1914, Fe	2 19.9 E	+0.5
Pensacola (*a*)	1908, Ap	4 30.3 E	1914, Ja	4 40.1 E	+1.7
Alabama:					
Huntsville (*a*)	1910, My	3 57.8 E	1914, Mh	3 59.2 E	+0.4
Anniston (*a*)	1911, Au	2 41.0 E	1914, Je	2 45.1 E	+1.4
Mississippi:					
Corinth (*a*)	1909, Je	4 44.8 E	1914, Je	4 47.8 E	+0.6
West Point (*a*)	1908, Ap	4 45.0 E	1914, Jy	4 52.0 E	+1.1
Greenville (*a*)	1905, Ja	6 01.0 E	1914, Jy	6 08.8 E	+0.8
Brookhaven (*a*)	1908, My	5 39.7 E	1914, No	5 48.9 E	+1.4
Louisiana:					
Alexandria (*a*)	1908, My	6 46.0 E	1914, Mh	7 03.4 E	+3.0
Lafayette (*a*)	1908, My	6 37.6 E	1914, Mh	6 49.4 E	+2.0
Shreveport (*a*)	1908, My	7 07.8 E	1914, No	7 28.4 E	+3.2
Tennessee:					
Knoxville (*a*)	1910, Ap	0 22.0 W	1914, Mh	0 24.4 W	−0.6
Athens (*a*)	1910, My	0 29.2 E	1914, Mh	0 32.1 E	+0.8
Memphis (*b*)	1908, My	5 29.6 E	1914, Au	5 39.2 E	+1.5
Illinois:					
Joliet (*a*)	1909, Jy	2 45.6 E	1914, Oc	2 37.8 E	−1.5
Bloomington (*a*)	1908, Se	3 25.9 E	1914, Oc	3 18.1 E	−1.3
Wisconsin:					
La Crosse (*a*)	1911, Je	5 35.3 E	1914, Se	5 28.0 E	−2.2
Appleton (*a*)	1908, Au	2 42.0 E	1914, Se	2 25.6 E	−2.7
Milwaukee (*a*)	1908, Jy	3 26.6 E	1914, Se	3 05.4 E	−3.4
Minnesota:					
Breckenridge (*a*)	1909, Au	12 16.4 E	1914, Au	12 10.2 E	−1.2
Mankato (*a*)	1908, Au	8 58.1 E	1914, Se	8 54.0 E	−0.7
Iowa:					
Sibley (*a*)	1909, Au	9 30.7 E	1914, Jy	9 27.2 E	−0.7
Dubuque (*a*)	1908, Se	5 26.9 E	1914, Oc	5 23.0 E	−0.6
North Dakota:					
Jamestown (*b*)	1907, Se	12 19.7 E	1914, Au	12 32.4 E	+1.8
Bismarck (*b*)	1907, Se	14 29.4 E	1914, Au	15 07.6 E	+5.5
South Dakota:					
Pierre (*a*)	1906, Se	13 01.9 E	1914, Au	13 04.4 E	+0.3
Watertown (*b*)	1906, Au	10 18.0 E	1914, Au	10 40.0 E	+2.8
Aberdeen (*c*)	1907, Jy	12 15.0 E	1914, Au	12 26.8 E	+1.7
Nebraska:					
Lincoln (*a*)	1913, Je	10 00.4 E	1914, Je	10 00.6 E	+0.2
Arkansas:					
Jonesboro (*a*)	1909, Ap	5 24.9 E	1914, Au	5 32.2 E	+1.4
Van Buren (*a*)	1905, My	7 39.2 E	1914, Se	7 54.4 E	+1.6

Comparison of declination results at repeat stations—Continued.

State and station	Former observation		Last observation		Average annual change
	Date	Declination	Date	Declination	
		° ′		° ′	′
Oklahoma:					
McAlester (*a*)	1909, Ap	8 43.0 E	1914, Oc	8 55.2 E	+2.2
Pauls Valley (*a*)	1905, No	9 14.8 E	1914, Oc	9 39.7 E	+2.8
Texas:					
Groesbeck (*c*)	1908, My	8 43.2 E	1914, Mh	9 00.8 E	+3.0
Amarillo (*a*)	1910, Au	12 05.2 E	1914, Mh	12 15.0 E	+2.7
El Paso (*a*)	1910, Je	12 04.6 E	1914, Ap	12 20.9 E	+4.3
Odessa (*a*)	1910, My	11 14.2 E	1914, Oc	11 32.0 E	+4.0
McKinney (*a*)	1911, Au	9 00.1 E	1914, Oc	9 10.0 E	+3.1
Lufkin (*b*)	1902, Au	7 38.2 E	1914, No	8 09.4 E	+2.5
New Mexico:					
Tucumcari (*a*)	1910, Au	12 43.4 E	1914, Mh	12 51.2 E	+2.2
Deming (*a*)	1910, Je	12 32.5 E	1914, Ap	12 47.7 E	+4.0
Arizona:					
Tucson (*a*)	1912 year	13 33.5 E	1914 year	13 39.9 E	+3.2
Yuma (*a*)	1910, Je	14 40.2 E	1914, Ap	14 46.6 E	+1.7
Colorado:					
Trinidad (*a*)	1903, Mh	13 47.3 E	1914, Ap	14 22.4 E	+3.2
California:					
Indio (*a*)	1910, Je	15 09.6 E	1914, Ap	15 24.0 E	+3.8
San Bernardino (*a*)	1910, Je	15 30.0 E	1914, My	15 40.6 E	+2.7
Barstow (*a*)	1910, Je	15 55.2 E	1914, My	16 03.4 E	+2.1
Stockton (*a*)	1910, Je	17 50.0 E	1914, My	18 05.2 E	+3.9
Red Bluff (*a*)	1910, Jy	19 23.2 E	1914, My	19 36.6 E	+3.4
Gazelle (*a*)	1910, Jy	20 14.7 E	1914, My	20 23.6 E	+2.3
Oregon:					
Eugene (*a*)	1908, Jy	23 27.6 E	1914, My	23 39.4 E	+2.0
Portland (*a*)	1910, Jy	23 20.8 E	1914, My	23 29.6 E	+2.3
Pendleton (*a*)	1910, Jy	22 04.5 E	1914, Jy	22 16.0 E	+2.9
Washington:					
Seattle (*a*)	1910, Jy	23 38.6 E	1914, Je	23 48.1 E	+2.4
Spokane (*a*)	1906, Au	23 21.8 E	1914, Au	23 40.2 E	+2.3
Walla Walla (*a*)	1905, Au	21 37.4 E	1914, Jy	21 59.0 E	+2.4
Hawaii:					
Honolulu Obs'y (*a*)	1912 year	9 34.8 E	1914 year	9 39.6 E	+2.4
Alaska:					
Sitka Obs'y (*a*)	1912 year	30 20.9 E	1914 year	30 23.0 E	+1.0
Dutch Harbor (*a*)	1909, My, Se	17 33.8 E	1914, Jy	17 24.1 E	−1.9

DISTRIBUTION OF OBSERVATIONS AT SEA.

Magnetic observations at sea were secured by the *Patterson* on the voyage from Honolulu to Unalaska and by the *McArthur* on the way to Alaska.

Summary of results at sea.

Steamer	General region	Results from swings			Results from course observations		
		Declination	Dip	Intensity	Declination	Dip	Intensity
McArthur	Pacific	4	0	0	3	0	0
Patterson	do	4	5	5	0	0	0

INSTRUMENTAL CORRECTIONS.

Most of the instruments used in the field work have been compared with the observatory instruments at Cheltenham during the year, the results generally differing but little from those of previous years.

The comparison of magnetometer No. 29 showed an increasing negative correction for horizontal intensity as compared with the results in previous years. A redetermination of the moment of inertia of the long magnet led to the conclusion that this progressive change was due to a change in the moment of inertia, as the new value brought the horizontal intensity results with No. 29 into close agreement with the adopted standard. A similar close agreement was obtained in the case of magnetometer No. 19 by the redetermination of the moment of inertia. In August, 1914, the lens in the long magnet of magnetometer No. 17 was broken. After a new one had been supplied the moment of inertia was redetermined and subsequent horizontal intensity results at Cheltenham were in close agreement with the adopted standard.

A comparison between magnetometer No. 26 at Cheltenham and magnetometer No. 31 at the Porto Rico observatory was secured by means of observations with magnetometer No. 17 at the latter place preceded and followed by observations at Cheltenham. The moment of inertia and the distribution coefficients of magnetometer No. 31 were also redetermined and the use of the revised constants brought the results with that instrument into much closer agreement with the adopted standard.

Comparisons of dip circle No. 31 with the earth inductors at Cheltenham, Tucson, and Sitka gave the following anomalous results:

Place	Date	Correction
Cheltenham, Md.	January, 1914.	−4.5
Tucson, Ariz.	April, 1914.	−0.5
Sitka, Alaska.	June, 1914.	+1.0
Cheltenham, Md.	October, 1914.	−4.6

No satisfactory method of harmonizing these results could be devised, and it was finally concluded to assume that the correction varied with the angle of dip for the range covered by the field observations, 59° to 73°.

Beginning with 1913 the results of magnetic observations made by the Coast and Geodetic Survey have been reduced to the International Standard of the Department of Terrestrial Magnetism of the Carnegie Institution of Washington. The published results of horizontal intensity observations made before that year must be diminished by 0.001 H to reduce them to that standard.

Corrections to magnetometers.

Number	Pattern	Correction to east declination	Correction to H in parts of H
8	Jones	0.0	−0.0013
17	C. & G. S.	0.0	− .0010*
17	C. & G. S.	0.0	.0000†
18	C. & G. S.	0.0	+ .0006
19	C. & G. S.	0.0	.0000
20	C. & G. S.	0.0	+ .0010
26	Wild-Edelmann	0.0	− .0010
29	C. & G. S.	0.0	.0000
30	India Survey	0.0	.0000
31	India Survey	0.0	− .0007
36	India Survey	−0.4	.0000
37	India Survey	0.0	+ .0012
38	Carnegie Institution	0.0	.0000

*Up to August. † After August.

Corrections to dip circles.

Number	Pattern	Needles	Designation	Correction
15	Kew-Casella	1 and 2	15. 12	− 3. 0
23	Kew-Casella	2 and 2	23. 22	— 4. 0
31	Kew-Dover	1 and 2	31. 12	−1. 0 to −4. 0
32	L. C.–Dover	2	32. 2	+10. 0
34	L. C.–Dover	5 and 6	34. 56	+ 4. 6
36	Kew–Dover	1 and 2	36. 12	− 2. 0
5676	Kew–Casella	1 and 2	76. 12	− 5. 0
5678	Kew–Casella	1 and 2	78. 12	− 2. 0

REDUCTION OF OBSERVATIONS.

Each value of the magnetic declination has been corrected for diurnal variation with the aid of the continuous observations at the nearest magnetic observatory, allowance being made for the change in diurnal range with change in magnetic latitude. No attempt has been made to correct the dip and intensity results for diurnal variation.

ARRANGEMENT OF TABLES.

LAND OBSERVATIONS.

The results presented in Table I are arranged by States alphabetically, and the results for each State are given in the order of increasing latitudes. The latitudes and longitudes are in most cases the results of solar observations made with the small theodolite which forms a part of the magnetometer. In default of observations or a chart the geographic coordinates were scaled from the best available map, either a topographic sheet of the United States Geological Survey, a post-route map, or some other State map. In such cases only the nearest whole minute of latitude or longitude is given. The horizontal intensity is expressed in terms of the one hundred-thousandth part of a C. G. S. unit of intensity of magnetic force, termed a *gamma* and designated by the Greek letter γ.

In order to include the desired amount of information in the available space, the months have been abbreviated as follows:

January	Ja	May	My	September	Se
February	Fe	June	Je	October	Oc
March	Mh	July	Jy	November	No
April	Ap	August	Au	December	De

Where the number in the magnetometer column is in italics, the declination observations were made with a compass declinometer. The letter C in that column indicates that the declination was determined with the compass attachment of the dip circle and that the horizontal intensity was computed from observations of dip and total intensity with the dip circle.

The observer is indicated by the initials of his name. The names of the observers are as follows:

F. L. Adams	J. W. Green	H. E. McComb
A. F. Beal	W. V. Hagar	W. W. Merrymon
J. R. Benton	G. Hartnell	M. O. Nelson
O. J. Bond	W. M. Hill	F. Neumann
H. B. Campbell	J. S. S. Jones	H. W. Pease
A. L. Giacomini	D. Karr	C. G. Quillian

SEA OBSERVATIONS.

The results on board ship are given in Table II. The general arrangement is indicated by the headings. In general, each value is the result of observations on 8 or 16 equidistant headings, swinging ship both with port and starboard helms. In the column headed "Sea," *sm.* means smooth; *sw.*, swell; *lt.*, light; *mod.*, moderate; *hvy.*, heavy. The commanding officers of the different ships were as follows: *McArthur*, C. G. Quillian; *Patterson*, J. B. Miller.

Intensity results are given in C. G. S. units. The horizontal intensity has been computed from the dip and total intensity.

LAND OBSERVATIONS.

TABLE I.—*Magnetic observations on land in 1914.*

ALABAMA.

Station	Latitude	Longitude	Date	Declination	Dip	Horizontal intensity	Instruments		Observer
							M	D.C.	
	° ′	° ′		*East*	° ′	γ			
Anniston	33 38.5	85 49.5	Je 9, 10	2 45.1	65 02.8	23926	38	76.12	W.M.H.
Heflin	33 38.6	85 35.1	Je 5	2 58.8	65 12.5	23880	38	76.12	W.M.H.
Vernon	33 45.1	88 07.6	Je 23, 24	4 39.6	64 45.8	24425	38	76.12	W.M.H.
Double Springs	34 08.2	87 25.8	Je 13–16	4 04.0	65 44.0	24132	38	76.12	W.M.H.
Hamilton	34 08.4	88 02.0	Je 18, 19	4 21.7	65 54.3	23673	38	76.12	W.M.H.
Huntsville	34 44.2	86 33.8	Mh 12	3 59.2	66 36.3	22880	20	31.12	J.W.G.

ALASKA.

				East					
Dutch Harbor	53 53.4	166 32.1	Jy 23, 24	17 24.1	66 38.5	20930	8	32.2	A.L.G.
Port Chester:									
Village Point	55 07.8	131 34.6	Au 1	29 19.2	.. ....	.....	*5*	.....	O.J.B.
Lump	55 08.3	131 34.8	Au 1	29 20.8	.. ....	.....	*5*	.....	O.J.B.
Gull, Nichols Passage	55 08.4	131 35.7	My 22	29 23.3	.. ....	.....	*5*	.....	C.G.Q.
Bluff, Sukkwan Strait	55 10.5	132 46.2	Se 18	29 12.8	.. ....	.....	*4*	.....	H.B.C.
Nichols Passage:									
Driest	55 10.5	131 36.4	My 22	29 17.6	.. ....	.....	*5*	.....	C.G.Q.
Blank Island L. H.	55 15.9	131 38.4	Se 8	29 27.6	.. ....	.....	*5*	.....	M.O.N.
Work	55 17.2	131 36.9	Se 8	29 33.3	.. ....	.....	*5*	.....	M.O.N.
Ketchikan	55 20.2	131 39.5	My 4	29 16.6	.. ....	.....	*5*	.....	D.K.
Do	55 20.2	131 39.5	Oc 26	29 16.4	.. ....	.....	*5*	.....	M.O.N.
Jacob	55 45.4	159 21.0	Jy 30, 31	20 31.0	.. ....	.....	*742*	.....	W.V.H.
Kupreanof Harbor	55 47.4	159 21.3	Au 18	20 03.9	69 47.2	19026	8	32.2	A.L.G.
Mitrofania	55 52.1	158 52.2	Se 26	21 11.6	.. ....	.....	*742*	.....	W.V.H.
Sitka Observatory	57 03.0	135 20.1	Ja–De	30 23.0	74 27.2	15602	37	2 EI	F.L.A.
Do	57 03.0	135 20.1	Je 13, 15	30 20.9	74 27.7	15599	20	31.12	J.W.G.
Passage Canal:									
Rane	60 46.4	148 23.2	Au 4	27 45.2	.. ....	.....	*8*	.....	J.S.S.J.
South Base	60 46.6	148 43.3	Je 15	27 40.5	.. ....	.....	*8*	.....	J.S.S.J.
North Base	60 46.9	148 43.4	Je 15	27 34.4	.. ....	.....	*8*	.....	J.S.S.J.
Saw	60 47.9	148 35.9	Jy 27	27 42.9	.. ....	.....	*8*	.....	J.S.S.J.
Cab	60 48.1	148 23.6	Au 4	27 49.0	.. ....	.....	*8*	.....	J.S.S.J.
Delta	60 48.5	148 38.1	Jy 15	27 43.0	.. ....	.....	*8*	.....	J.S.S.J.
Landlock Bay:									
Hes	60 49	146 35	Se 22	28 50.4	.. ....	.....	*8*	.....	J.S.S.J.
Lo	60 49	146 37	Se 22	28 47.8	.. ....	.....	*8*	.....	J.S.S.J.

ARIZONA.

				East					
Tucson Obs'y	32 14.8	110 50.1	Ja–De	13 39.9	59 23.2	27185	30	3 EI	A.F.B.
Do	32 14.8	110 50.1	Ap 23–25	13 39.8	59 22.3	27176	20	31.12	J.W.G.
Do	32 14.8	110 50.1	Se–Oc	13 41.1	59 23.8	27145	17	78.12	F.N.
Yuma, old	32 43.6	114 37.2	Ap 27	14 46.6	58 55.0	27160	20	31.12	J.W.G.
Yuma, new	32 43.9	114 37.0	Ap 28	14 45.4	58 57.9	27112	20	31.12	J.W.G.

TABLE I.—*Magnetic observations on land in 1914*—Continued.

ARKANSAS.

Station	Latitude	Longitude	Date	Declination	Dip	Horizontal intensity	Instruments		Observer
							M	D.C.	
	° ′	° ′		*East*	° ′	γ			
DeWitt	34 17.5	91 21.8	Au 20, 21	6 24.8	65 16.0	23998	38	76.12	W.M.H.
Van Buren	35 26.7	94 21.5	Se 30	7 54.4	65 59.3	23616	38	76.12	W.M.H.
Jonesboro	35 49.3	90 43.4	Au 24	5 32.2	67 05.9	22874	38	76.12	W.M.H.
Lake City	35 49.3	90 24.6	Au 27, 28	5 35.0	66 52.0	22832	38	76.12	W.M.H.
Mountain View	35 52.1	92 09.2	Se 18–20	6 50.7	66 50.6	22874	38	76.12	W.M.H.
Melbourne	36 03.8	91 57.7	Se 14, 15	6 39.1	67 00.1	22788	38	76.12	W.M.H.
Powhatan	36 05.1	91 07.7	Se 6, 7	6 10.8	67 04.1	22767	38	76.12	W.M.H.
Pocahontas	36 16.4	91 01.8	Se 10, 11	6 04.6	67 14.4	22505	38	76.12	W.M.H.
Berryville	36 22.5	93 33.9	Se 23, 24	7 31.6	66 58.8	22865	38	76.12	W.M.H.
Eureka Springs	36 24.0	93. 42.3	Se 29	7 28.3	66 55.6	22935	38	76.12	W.M.H.
Eureka Springs, A	36 25.1	93 42.3	Se 27	7 27.4	.. ....	.....	38	.....	W.M.H.

CALIFORNIA.

				East					
Indio	33 43.6	116 13.2	Ap 30	15 24.0	59 20.7	26897	20	31.12	J.W.G.
San Bernardino	34 05.2	117 17.9	My 1	15 40.6	59 38.0	26690	20	31.12	J.W.G.
Barstow	34 53.9	117 01.8	My 4	16 03.4	60 28.6	26158	20	31.12	J.W.G.
Stockton	37 58.6	121 17.0	My 6	18 05.2	63 00.5	24867	20	31.12	J.W.G.
Chico C	39 44.2	121 48.4	My 9	17 51.7	64 25.8	23803	20	31.1	J.W.G.
Chico B	39 44.6	121 48.5	My 9	17 27.2	64 09.4	23914	20	31.1	J.W.G.
Chico A	39 44.6	121 48.8	My 8	17 17.1	64 14.2	23878	20	31.12	J.W.G.
Red Bluff	40 11.5	122 17.2	My 11	19 36.6	64 35.4	23680	20	31.12	J.W.G.
Dunsmuir	41 13.1	122 17.5	My 12	19 35.8	66 01.2	22545	20	31.12	J.W.G.
Gazelle	41 31.6	122 31.1	My 13	20 23.6	65 33.8	23061	20	31.12	J.W.G.

COLORADO.

				East					
Trinidad	37 11.7	104 29.5	Ap 1	14 22.4	65 35.5	23608	20	31.12	J.W.G.

DELAWARE.

				West.					
Wilmington	39 45.3	75 32.6	Je 20	10 04.3	71 00.0	19635	19	36.12	J. R. B.

FLORIDA.

				East.					
Bradentown	27 29.8	82 34.4	Mh 18, 19	1 59.6	59 00.0	27384	38	76.12	W.M.H.
Clearwater	27 58.5	82 47.1	Mh 21, 23	2 19.4	59 34.7	26956	38	76.12	W.M.H.
Plant City	28 01.0	82 07.8	Mh 16, 17	1 36.8	59 57.9	26657	38	76.12	W.M.H.
Sanford	28 48.2	81 17.0	Mh 12, 13	1 21.6	61 00.7	26151	38	76.12	W.M.H.
Sanford, grammar school	28 48.3	81 17.2	Mh 11	1 22.2	.. ....	.....	38	.....	W.M.H.
Dunnellon	29 03.0	82 27.9	Mh 25	2 01.9	60 55.2	26319	38	76.12	W.M.H.
Archer	29 32.0	82 30.9	Mh 26, 27	2 30.4	61 32.9	25835	38	76.12	W.M.H.
Gainesville, new	29 38.8	82 20.6	Mh 30, 31	2 10.6	61 47.7	25731	38	76.12	W.M.H.
Gainesville, old	29 39.3	82 19.4	Ap 2	2 08.3	61 47.8	25746	38	76.12	W.M.H.
Green Cove Springs	29 59.8	81 40.4	Mh 9, 10	1 01.0	62 12.0	25498	38	76.12	W.M.H.
Macclenny	30 16.4	82 05.9	Mh 6, 7	1 17.6	62 08.4	25572	38	76.12	W.M.H.
Pensacola	30 20.9	87. 16 1	Ja 24, 25	4 40.1	61 40.4	26188	38	76.12	W.M.H.
Tallahassee, old	30 26.0	84 17.7	Fe 23	2 19.9	62 02.2	25702	38	76.12	W.M.H.
Tallahassee, new	30 26.1	84 17.7	Fe 24	2 20.3	.. ....	.....	38	.....	W.M.H.
Bristol	30 26.1	84 59	Fe 14, 15	3 11.7	62 16.2	25878	38	76.12	W.M.H.
Blountstown	30 26.2	85 03	Fe 4, 7	3 28.0	62 09.8	25890	38	76.12	W.M.H.
Jaspar	30 30.9	82 56.9	Mh 4	1 35.9	62 30.7	25438	38	76.12	W.M.H.
Monticello	30 32.4	83 54.0	Fe 27–Mh 1	2 11.8	62 24.0	25499	38	76.12	W.M.H.
Quincy	30 36.5	84 34.6	Fe 19, 20	2 39.2	62 39.9	25416	38	76.12	W.M.H.
Vernon	30 37.6	85 41.7	Ja 30, 31	3 20.8	62 07.9	25767	38	76.12	W.M.H.
Fernandina	30 40.4	81 27.0	Ap 6	1 05.1	62 48.3	25051	38	76.12	W.M.H.
Bonifay	30 47.5	85 40.9	Ja 27, 28	3 26.0	62 20.9	25697	38	76.12	W.M.H.

TABLE I.—*Magnetic observations on land in 1914*—Continued.

GEORGIA.

Station	Latitude	Longitude.	Date	Declination	Dip	Horizontal intensity	Instruments		Observer
							M	D.C.	
	° ′	° ′		*East.*	° ′	γ			
St. Marys	30 42.9	81 34.4	Ap 10	1 00.8	62 48.0	25044	38	76.12	W.M.H.
Darien	31 22.4	81 27.3	Ap 15, 16	0 31.8	63 23.8	24676	38	76.12	W.M.H.
Hinesville	31 50.4	81 33.3	Ap 28	0 37.6	63 46.7	24589	38	76.12	W.M.H.
Clyde	32 00.9	81 22.6	Ap 25, 26	0 30.6	64 03.8	24364	38	76.12	W.M.H.
Savannah, new	32 01.6	81 04.4	Ap 22, 23	0 22.2	64 08.0	24321	38	76.12	W.M.H.
Savannah, old	32 05.7	81 04.7	Ap 19, 20	0 20.3	64 10.6	24288	38	76.12	W.M.H.
Alamo	32 08.6	82 47.3	My 6	1 26.2	64 10.6	24472	38	76.12	W.M.H.
Springfield	32 22.0	81 16.7	My 2, 4	0 18.4	64 17.8	24267	38	76.12	W.M.H.
Cochran	32 22.9	83 22.2	My 11, 12	1 36.0	64 11.3	24384	38	76.12	W.M.H.
Jeffersonville	32 41.5	83 20.4	My 16, 17	1 31.4	64 40.4	24216	38	76.12	W.M.H.
Wrightsville	32 43.1	82 46	My 19, 20	1 13.2	64 29.5	24298	38	76.12	W.M.H.
Macon	32 50.6	83 36.6	My 13, 14	1 56.2	64 42.6	24076	38	76.12	W.M.H.
Eatonton	33 20.1	83 23	My 24, 25	1 04.9	65 03.2	23874	38	76.12	W.M.H.
Conyers	33 39.2	84 00	My 27	1 36.4	65 32.6	23595	38	76.12	W.M.H.
Dallas	33 55.6	84 51.7	Je 2, 3	1 46.0	65 47.8	23426	38	76.12	W.M.H.

HAWAII.

				East.					
Honolulu Obs'y	21 19.2	158 03.8	Ja–De	9 39.6	39 29.9	29040	36	4 EI	W.W.M.
Do	21 19.2	158 03.9	Fe 26, 27	9 38.9	39 29.2	29056	8	32.2	A.L.G.

IDAHO.

				East.					
Rathdrum	47 51.9	116 51.2	Au 8	22 53.2	71 59.6	18458	20	31.12	F.L.A.
Sand Point	48 15.8	116 34.5	Au 10, 11	22 57.6	72 33.2	17972	20	31.12	F.L.A.

ILLINOIS.

				East.					
Bloomington	40 30.7	88 59.8	Oc 9	3 18.1	71 12.8	19460	20	31.12	F.L.A.
Joliet	41 28.7	88 11.2	Oc 7	2 37.8	72 24.9	18366	20	31.12	F.L.A.
Caledonia	42 22.3	88 53.2	Oc 5	3 34.1	73 09.0	17714	20	31.12	F.L.A.
Harvard	42 26.3	88 37.1	Oc 2, 3	2 52.8	73 03.4	17888	20	31.12	F.L.A.

IOWA.

				East.					
Griswold C	41 13.2	95 08.9	Je 19	9 38.4	71 13.4	19523	29	15.1	H.E.M.
Griswold B	41 14.0	95 07.4	Je 19	9 36.9	71 13.4	19568	29	15.1	H.E.M.
Griswold	41 14.3	95 08.4	Je 18	9 34.9	71 09.9	19574	29	15.12	H.E.M.
Griswold A	41 14.7	95 08.4	Je 19	9 28.5	71 12.0	19575	29	15.1	H.E.M.
Exira	41 34.2	94 51.4	Je 20	9 26.4	71 25.7	19318	29	15.12	H.E.M.
Exira A	41 34.2	94 51.4	Je 21	9 25.6	71 24.1	19337	29	15.1	H.E.M.
Exira B	41 34.2	94 51.4	Je 21	9 28.7	71 24.5	19295	29	15.1	H.E.M.
Mondamin B	41 41.4	96 01.4	Je 29	10 24.6	70 56.6	20061	29	15.1	H.E.M.
Mondamin C	41 41.8	96 03.9	Je 29	10 35.9	70 59.0	19845	29	15.1	H.E.M.
Mondamin	41 42.3	96 01.4	Je 26, 27	10 16.7	71 02.8	19991	29	15.12	H.E.M.
Mondamin A	41 42.3	96 02.6	Je 29	10 54.3	70 50.9	20143	29	15.1	H.E.M.
Mondamin A′	41 42.3	96 02.6	Je 29	10 54.4	.. ....	.....	29	.....	H.E.M.
Mondamin E	41 42.3	96 01.9	Jy 1	10 43.3	70 57.5	20087	29	15.1	H.E.M.
Mondamin F	41 42.3	95 59.4	Jy 1	9 34.6	71 12.9	19874	29	15.1	H.E.M.
Mondamin X	41 42.6	96 01.4	Jy 1	.. ....	71 05.9	.....	..	15.1	H.E.M.
Mondamin Y	41 42.9	96 01.4	Jy 1	.. ....	71 18.5	.....	..	15.1	H.E.M.
Mondamin D	41 43.3	96 01.4	Jy 1	10 23.6	71 23.5	19637	29	15.12	H.E.M.
Dunlap B	41 45.7	95 34.2	Je 25	8 52.1	71 17.1	19363	29	15.1	H.E.M.
Dunlap A	41 51.1	95 35.2	Je 25	8 44.5	71 25.8	19391	29	15.1	H.E.M.
Dunlap	41 51.1	95 36.2	Je 24	8 45.0	71 25.6	19408	29	15.12	H.E.M.
Moorhead F	41 53.0	95 48.9	Jy 4	8 22.7	71 36.1	19460	29	15.1	H.E.M.
Moorhead H	41 53.2	95 47.2	Jy 6	7 57.3	71 14.6	19673	29	15.1	H.E.M.
Moorhead E	41 54.6	95 48.5	Jy 4	8 43.1	71 36.1	19450	29	15.1	H.E.M.
Moorhead A	41 54.6	95 47.5	Jy 3	8 11.7	71 33.0	19529	29	15.1	H.E.M.

TABLE I.—*Magnetic observations on land in 1914*—Continued.

IOWA—Continued.

Station	Latitude	Longitude	Date	Declination	Dip	Horizontal intensity	Instruments		Observer
							M	D.C.	
	° ′	° ′		*East.*	° ′	γ			
Moorhead G	41 54.6	95 47.0	Jy 6	8 00.3	71 26.0	19552	29	15.1	H.E.M.
Moorhead B	41 54.8	95 49.5	Jy 4	9 18.3	71 46.4	19308	29	15.1	H.E.M.
Moorhead C	41 54.8	95 50.0	Jy 4	9 21.1	71 48.5	19214	29	15.1	H.E.M.
Moorhead	41 54.8	95 49.0	Jy 3	9 17.6	71 43.7	19340	29	15.12	H.E.M.
Moorhead D	41 55 2	95 48.7	Jy 4	9 26.2	71 45.5	19314	29	15.1	H.E.M.
Moorhead I	41 56.5	95 45.5	Jy 7	7 18.5	71 54.9	19051	29	15.1	H.E.M.
Smithland	42 13	95 55.1	Jy 8, 9	10 33.6	72 11.0	18730	29	15.12	H.E.M.
Walker	42 17	91 46.3	No 10, 11	6 13.6	72 46.1	18185	29	15.12	H.E.M.
Correctionville	42 28.0	95 44.8	Jy 9,10	10 46.4	72 09.3	18596	29	15.12	H.E.M.
Dubuque	42 31.0	90 39.8	Oc 30	5 23.0	73 09.2	17688	29	15.12	H.E.M.
Strawberry Point C	42 37.8	91 33.5	No 1	3 51.3	73 33	17418	29	15.12	H.E.M.
Strawberry Point	42 40.4	91 31.1	Oc 31, No 1	4 21.2	73 31.8	17314	29	15.12	H.E.M.
Strawberry Point 1	42 40.4	91 31.2	No 1	4 12.9	.. ....	.....	29	.....	H.E.M.
Strawberry Point A	42 40.4	91 27.5	No 1	4 39.1	73 31	17360	29	15.1	H.E.M.
Oelwein B	42 41.2	91 50.8	No 9	6 02.8	72 39	18220	29	15.1	H.E.M.
Oelwein A	42 41.6	91 58.0	No 9	8 10.8	72 48	17858	29	15.1	H.E.M.
Oelwein	42 41.6	91 54.4	No 9	7 21.6	72 48.6	18246	29	15.12	H.E.M.
Strawberry Point B	42 42.1	91 33.5	No 1	3 28.1	73 35	17397	29	15.1	H.E.M.
Pocahontas	42 44.1	94 40.4	Jy 16	9 39.6	72 40.6	18156	29	15.12	H.E.M.
Rolfe	42 48.4	94 30.9	Jy 15	9 21.0	72 44.7	18209	29	15.12	H.E.M.
Plainfield	42 49.8	92 30.9	No 6	7 09.3	72 52.0	17998	29	15.12	H.E.M.
Sioux Rapids	42 52.1	95 07.4	Jy 14	9 39.0	72 44.5	18034	29	15.12	H.E.M.
Mallard	42 56.2	94 41.9	Jy 17	9 53.8	72 51.7	18022	29	15.12	H.E.M.
Waucoma	43 02.9	92 01.0	No 3, 4	7 15.8	73 30.6	17523	29	15.12	H.E.M.
Waukon	43 16.1	91 26.9	Oc 29	5 11.6	73 49.8	17128	29	15.12	H.E.M.
Lake Mills C (Delano)	43 20.0	93 30.6	Se 28	9 37.2	73 11	17932	29	15.1	H.E.M.
Lake Mills A	43 22.4	93 28.3	Se 26	10 15.0	73 08	17896	29	15.1	H.E.M.
Sibley	43 23.8	95 44.0	Jy 21, 22	9 27.2	72 55.8	18010	29	15.12	H.E.M.
Lake Mills B (Bristol)	43 24.0	93 26.5	Se 26	8 57.4	73 16	17838	29	15.1	H.E.M.
Lake Mills	43 24.4	93 31.2	Se 24, 25	9 42.6	73 19.0	17835	29	15.12	H.E.M.
LOUISIANA.									
				East.					
La Fayette	30 13	92 00	Mh 19	6 49.4	60 49.6	26743	20	31.12	J.W.G.
Port Allen	30 27.3	91 13.2	No 11	6 21.6	61 23.8	26284	17	78.12	F.N.
Oberlin	30 37.4	92 56.0	No 6, 7	7 17.0	61 21.8	26330	17	78.12	F.N.
Ville Platte	30 42	92 19.0	No 9	6 58.6	61 31.4	26283	17	78.12	F.N.
De Ridder	30 51.0	93 27.2	No 4, 5	7 28.2	61 20.8	26333	17	78.12	F.N.
Alexandria	31 19.8	92 23.9	Mh 16	7 03.4	61 48.8	26178	20	31.12	J.W.G.
Shreveport	32 31.0	93 45.9	No 14	7 28.4	62 56.8	25574	38	76.12	W.M.H.
MAINE.									
				West.					
Portland	43 38.8	70 16.6	Au 11	15 47.2	73 59.1	16367	17	78.12	F.N.
Canton	44 26.4	70 18.4	Au 5	16 29.6	74 33.2	15760	17	78.12	F.N.
Bangor	44 48.2	68 48.2	Au 7	18 16.6	74 42.8	15567	17	78.12	F.N.
MARYLAND.									
				West.					
Cheltenham Obs'y	38 44.0	76 50.5	Ja–De	5 59.8	70 43.7	19507	26	26EI	G.H.
Do	38 44.0	76 50.5	Ja 7–9	5 56.9	70 42.1	19539	11	15.12	G.H.
Do	38 44.0	76 50.5	Ja 28–30	5 57.4	70 42.4	19551	20	31.12	J.W.G.
Do	38 44.0	76 50.5	Ja 28, 30	5 57.7	.. ....	.....	22	.....	J.W.G.
Do	38 44.0	76 50.5	Fe 7–23	5 58.0	.. ....	19554	17	.....	G.H.
Do	38 44.0	76 50.5	Fe 10, 11	5 56.6	.. ....	19550	19	.....	G.H.
Do	38 44.0	76 50.5	Fe 27	.. ....	70 42.8	.....	..	36.12	H.W.P.
Do	38 44.0	76 50.5	Mh 4, 5	.. ....	70 44.8	19521	19	22EI	G.H.
Do	38 44.0	76 50.5	My 4, 6	5 59.0	.. ....	19513	17	.....	G.H.
Do	38 44.0	76 50.5	Oc 26–28	6 00.8	70 47.4	19494	20	31.12	G.H.
Do	38 44.0	76 50.5	Oc 27, 28	6 00.3	70 46.9	19502	19	36.12	G.H.
Do	38 44.0	76 50.5	De 17–29	6 02.0	70 45.9	19465	29	15.12	G.H.
Do	38 44.0	76 50.5	De 18–22	6 01.8	70 45.8	19460	17	76.12	G.H.

TABLE I.—*Magnetic observations on land in 1914*—Continued.

MASSACHUSETTS.

Station	Latitude	Longitude	Date	Declination	Dip	Horizontal intensity	Instruments		Observer
							M	D.C.	
	° ′	° ′		*West.*	° ′	γ			
Becket	42 19.6	73 04.9	Je 17	13 11.6	73 14.4	17149	17	78.12	F. N.
Pittsfield	42 26.0	73 16.0	Je 16	12 12.2	73 25.2	16899	17	78.12	F. N.

MINNESOTA.

				East.					
Kiester D	43 29.6	93 40.5	Se 30	11 02.9	73 04	17927	29	15.1	H. E. M.
Mabel C	43 29.7	91 42.9	Oc 27	5 05.3	73 32	17751	29	15.1	H. E. M.
Le Roy	43 30.0	92 30.2	Oc 21	6 35.9	73 43.8	17226	29	15.12	H. E. M.
Kiester C	43 30.5	93 34.3	Se 30	10 05.3	73 08	17944	29	15.1	H. E. M.
Mabel 1	43 31.3	91 42.2	Oc 26	2 24.4	.. ....	.....	29	.....	H. E. M.
Mabel	43 31.4	91 42.2	Oc 26	2 31.2	74 52.7	16548	29	15.12	H. E. M.
Kiester	43 32.2	93 40.8	Se 29, Oc 1	11 17.0	73 01.7	18002	29	15.12	H. E. M.
Kiester B (Bricelyn)	43 33.1	93 45.5	Se 30	10 53.1	72 58	17850	29	15.1	H. E. M.
Mabel B	43 33.3	91 39.2	Oc 27	4 31.2	73 37	17532	29	15.1	H. E. M.
Mabel A	43 33.5	91 45.2	Oc 27	6 12.1	73 43	17390	29	15.1	H. E. M.
Kiester A	43 34.8	93 40.7	Se 29	11 15.9	73 21	18115	29	15.1	H. E. M.
Wells A	43 40.3	93 44.2	Oc 3	11 07.4	73 20	17624	29	15.1	H. E. M.
Wells C	43 43.8	93 48.9	Oc 5	10 26.0	73 03	17833	29	15.1	H. E. M.
Wells D	43 43.8	93 40.7	Oc 5	10 52.4	73 23	17653	29	15.1	H. E. M.
Wells	43 43.8	93 44.2	Se 22	10 46.8	73 12.3	17750	29	15.12	H. E. M.
Winnebago	43 45.8	94 09.1	Se 19, 20	8 45.2	73 08.2	17688	29	15.12	H. E. M.
Wells B	43 46.7	93 44.2	Oc 3	10 34.0	73 16	17724	29	15.1	H. E. M.
Blooming Prairie C	43 48.3	93 03.6	Oc 14	6 14.8	73 40	17348	29	15.1	H. E. M.
Chatfield	43 49.2	92 09.4	Oc 23	7 48.9	74 10.2	16813	29	15.12	H. E. M.
Rushford	43 49.7	91 43.0	Oc 24, 25	5 37.2	74 09.9	16888	29	15.12	H. E. M.
Blooming Prairie 2	43 50.8	93 03.6	Oc 14	6 06.9	.. ....	.....	29	.....	H. E. M.
Blooming Prairie	43 50.9	93 03.6	Oc 10	5 57.8	73 43.6	17338	29	15.12	H. E. M.
Blooming Prairie 1	43 51.0	93 03.6	Oc 11	6 05.6	.. ....	.....	29	.....	H. E. M.
Blooming Prairie B	43 51.4	93 00.0	Oc 14	5 30.8	73 52	17277	29	15.1	H. E. M.
Ellendale	43 51.4	93 18.0	Oc 8, 9	7 39.7	73 50.2	17312	29	15.12	H. E. M.
Blooming Prairie A	43 52.2	93 06.6	Oc 14	6 25.2	73 45	17372	29	15.1	H. E. M.
Amboy	43 52.7	94 09.0	Se 17	8 05.2	73 14.7	17584	29	15.12	H. E. M.
Claremont A	43 59.4	93 01.2	Oc 16	5 15.7	73 59	17178	29	15.1	H. E. M.
Claremont	44 02.0	93 01.2	Oc 15, 17	5 09.1	74 04.4	17120	29	15.12	H. E. M.
Claremont 1	44 02.0	93 01.1	Oc 16	5 07.7	.. ....	.....	29	.....	H. E. M.
Claremont C	44 04.0	92 58.2	Oc 16	4 59.0	74 02	17095	29	15.1	H. E. M.
Claremont B	44 04.9	93 03.6	Oc 16	5 24.0	74 09	17166	29	15.1	H. E. M.
Mankato	44 05.9	94 00.5	Se 15	8 54.0	73 34.8	17430	29	15.12	H. E. M.
Kenyon A	44 12.9	92 58.7	Oc 18	5 22.5	74 23	16807	29	15.1	H. E. M.
Kenyon 1	44 15.6	92 58.7	Oc 18	5 26.5	.. ....	.....	29	.....	H. E. M.
Kenyon	44 15.7	92 58.7	Oc 18, 19	5 27.8	74 25.5	16692	29	15.12	H. E. M.
Kenyon B	44 17.6	93 01.4	Oc 18, 19	5 28.8	74 29	16674	29	15.1	H. E. M.
Kenyon C	44 17.6	92 55.7	Oc 19	5 13.6	74 31	16623	29	15.1	H. E. M.
St. Peter	44 19.6	94 00.5	Se 14	8 22.6	73 56.0	17170	29	15.12	H. E. M.
Cannon Falls	44 30.2	92 53.2	Oc 20	6 03.0	74 19.7	16710	29	15.12	H. E. M.
Buffalo Lake	44 44.6	94 36.6	Se 7	8 36.0	74 50.3	16156	29	15.12	H. E. M.
Olivia	44 45.6	94 58.3	Se 5	9 28.4	74 33.5	16544	29	15.12	H. E. M.
Chaska	44 46.4	93 36.3	Se 11	9 26.0	74 50.3	16338	28	15.12	H. E. M.
Elbow Lake	45 59.6	95 59.0	Se 2	10 35.6	74 57.3	16079	29	15.12	H. E. M.
Breckenridge	46 15.5	96 35.5	Au 31	12 10.2	75 37.5	15454	29	15.12	H. E. M.

MISSISSIPPI.

				East.					
Brookhaven, old	31 35.4	90 26.8	No 19, 20	5 48.9	62 01.5	26120	38	76.12	W. M. H.
Brookhaven A	31 35.4	90 26.8	No 20	5 57.2	.. ....	.....	38	.....	W. M. H.
Brookhaven, new	31 35.5	90 27.7	No 21, 22	5 57.2	62 31.1	25683	38	76.12	W. M. H.
Port Gibson	31 57.0	91 01.8	No 17, 18	6 23.1	62 52.1	25455	38	76.12	W. M. H.
Raymond	32 15.7	90 26.8	No 16	6 08.4	63 15.8	25202	17	78.12	F. N.
Edwards	32 20	90 34.2	No 18	5 59.2	63 12.0	25208	17	78.12	F. N.
Mayersville	32 54.0	91 02.1	No 21	6 23.4	63 38.6	25041	17	78.12	F. N.
Vaiden	33 19.5	89 45.6	Jy 22	5 26.6	64 23.7	24561	38	76.12	W. M. H.
Greenville	33 24	91 04.6	Jy 28, 29	6 08.8	64 09.2	24720	38	76.12	W. M. H.

TABLE I.—*Magnetic observations on land in 1914*—Continued.

MISSISSIPPI—Continued.

Station	Latitude	Longitude	Date	Declination	Dip	Horizontal intensity	Instruments		Observer
							M	D.C.	
	° ′	° ′		*East.*	° ′	γ			
Carrollton	33 31.5	89 56.1	Jy 25	5 31.2	64 25.1	24600	38	76.12	W. M. H.
Walthall	33 36.3	89 17.6	Jy 18	5 16.9	64 29.9	24494	38	76.12	W. M. H.
West Point	33 36.3	88 39.0	Jy 15, 16	4 52.0	64 46.6	24335	38	76.12	W. M. H.
Cleveland	33 44.2	90 44.1	Jy 30, 31	6 14.2	64 31.7	24520	38	76.12	W. M. H.
Aberdeen	33 49.7	88 32.5	Je 27	4 44.0	65 11.6	23992	38	76.12	W. M. H.
Okolona	34 01.4	88 46.1	Jy 13, 14	4 54.6	65 30.7	23778	38	76.12	W. M. H.
Fulton	34 15.2	88 24.5	Jy 10	4 35.0	65 28.9	23752	28	76.12	W. M. H.
Friar's Pt	34 22.6	90 38.2	Au 6, 7	5 58.4	65 20.8	23934	38	76.12	W. M. H.
Booneville	34 38.7	88 35.3	Jy 3	4 37.6	65 54.1	23536	38	76.12	W. M. H.
Corinth	34 55.3	88 31.2	Je 29	4 47.8	66 16.6	23129	38	76.12	W. M. H.
MONTANA.									
				East.					
Hamilton	46 15.6	114 10.0	Au 15	21 09.2	71 26.0	19013	20	31.12	F.L.A.
Phillipsburg	46 21.4	113 16.9	Au 18	21 58.6	71 37.6	18828	20	31.12	F.L.A.
Roundup	46 29.0	108 31.1	Au 25	19 10.7	72 54.8	17896	20	31.12	F.L.A.
White Sulphur Springs	46 33.5	110 53.5	Au 21	20 35.8	72 22.0	18232	20	31.12	F.L.A.
Terry	46 48.0	105 18.3	Au 27	17 54.4	73 58.8	16943	20	31.12	F.L.A.
Thompson Falls	47 36.3	115 20.4	Au 13	22 45.6	72 08.4	18382	20	31.12	F.L.A.
NEBRASKA.									
				East.					
Lincoln	40 49.5	96 40.8	Je 13	10 00.6	70 39.8	20019	29	15.12	H.E.M.
NEW HAMPSHIRE.									
				West.					
Winchester	42 46.0	72 23.6	Je 20	12 01.4	73 43.4	16667	17	78.12	F.N.
Franklin	43 26.4	71 39.0	Jy 17, 18	13 54.6	73 59.6	16334	17	78.12	F.N.
Laconia	43 32.9	71 28.8	Jy 20–22	13 44.6	74 06.6	16222	17	78.12	F.N.
Canaan	43 38	72 01.3	Jy 16	14 25.0	74 02.0	16380	17	78.12	F.N.
Warren	43 54.7	71 53.6	Jy 24, 25	15 19.3	74 16.0	16227	17	78.12	F.N.
Whitefield	44 23	71 36.7	Jy 30	14 54.6	74 39.6	15735	17	78.12	F.N.
NEW JERSEY.									
				West.					
New Egypt	40 04.2	74 31.9	Je 22, 23	8 53.4	71 31.8	18570	19	36.12	J.R.B.
Bordentown	40 09.0	74 41.3	Je 25, 26	8 41.2	71 18.3	18915	19	36.12	J.R.B.
Trenton	40 15.1	74 48.5	Je 27	8 55.7	71 35.2	18663	19	36.12	J.R.B.
Hightstown	40 16.6	74 32.5	Je 24	9 38.7	71 31.0	18770	19	36.12	J.R.B.
Lambertville	40 22.5	74 57.0	Je 29	8 52.7	72 03.8	18395	19	36.12	J.R.B.
Frenchtown	40 31.8	75 04.2	Jy 23	9 05.2	71 47.5	18605	19	36.12	J.R.B.
Plainfield	40 36.7	74 23.8	Jy 2	9 30.1	72 00.0	18243	19	36.12	J.R.B.
Millington	40 39.8	74 31.6	Jy 13	8 58.8	71 31.9	18858	19	36.12	J.R.B.
Westfield	40 40	74 19.6	Jy 4	9 29.9	72 02.1	18224	19	36.12	J.R.B.
South Orange	40 43.2	74 17.0	Jy 9	10 10.2	71 52.5	18269	19	36.12	J.R.B.
Summit	40 43.3	74 22.4	Jy 11	9 56.3	71 57.3	18322	19	36.12	J.R.B.
Chester	40 46.6	74 41.4	Jy 15, 16	9 38.8	72 07.9	18127	19	36.12	J.R.B.
Bloomfield	40 50.2	74 13.0	Jy 8	9 46.4	72 08.1	18169	19	36.12	J.R.B.
Hackettstown	40 50.5	74 50.1	Jy 21	8 49.9	72 24.0	17836	19	36.12	J.R.B.
Mount Arlington	40 55.4	74 37.8	Jy 17	9 13.1	72 53.7	17511	19	36.12	J.R.B.
Franklin Furnace	41 06.2	74 35.0	Jy 20	9 12.0	72 43.4	17538	19	36.12	J.R.B.

TABLE I.—*Magnetic observations on land in 1914*—Continued.

NEW MEXICO.

Station	Latitude	Longitude	Date	Declination	Dip	Horizontal intensity	Instruments		Observer
							M	D.C.	
	° ′	° ′		*East.*	° ′	γ			
Deming	32 15.6	107 45.4	Ap 21	12 47.7	59 48.2	27091	20	31.12	J.W.G.
Tucumcari	35 11.4	103 44.1	Mh 30	12 51.2	63 34.1	25253	20	31.12	J.W.G.

NEW YORK.

				West.					
Rome	43 11.6	75 29.6	My 28	10 03.8	74 09.2	16326	17	78.12	F.N.
Camden	43 19.8	75 43.4	My 29	9 48.9	74 18.6	16503	17	78.12	F.N.
Pulaski	43 32.9	76 07.8	Je 1, 2	9 50.9	74 18.0	16378	17	78.12	F.N.
Cape Vincent 1	44 07.1	76 19.8	Je 5	12 15.0	74 45.6	15918	17	78.12	F.N.
Cape Vincent 2	44 07.1	76 19.8	Je 6	12 05.8	74 56.4	15536	17	78.12	F.N.
Cape Vincent 3	44 07.1	76 19.8	Je 6	11 37.5	74 54.8	15612	17	78.12	F.N.
Clayton	44 14.7	76 05.6	Je 8, 9	11 24.1	76 15.5	14153	17	78.12	F.N.
Alexandria Bay	44 20.0	75 54.5	Je 10	10 54.0	74 52.4	15612	17	78.12	F.N.
Morristown	44 35.7	75 41.2	Je 12	10 40.6	75 09.9	15485	17	78.12	F.N.
Potsdam	44 40.1	74 58.8	Je 15	12 00.4	75 17.8	15392	17	78.12	F.N.

NORTH DAKOTA.

				East.					
Hettinger	46 01.4	102 38.1	Au 29	16 16.2	73 43.4	17212	20	31.12	F.L.A.
Hettinger, auxiliary 1	46 01.4	102 38.1	Au 31	16 16.5	73 35.6	17217	20	31.12	F.L.A.
Hettinger, auxiliary 2	46 01.4	102 38.1	Au 31	16 19.3	.. ....	17181	20	.....	F.L.A.
Bismarck	46 48.4	100 47.4	Au 29	15 07.6	74 49.3	16320	29	15.12	H.E.M.
Jamestown	46 53.0	98 41.9	Au 28, 29	12 32.4	75 26.2	15660	29	15.12	H.E.M.

OKLAHOMA.

				East.					
Walter	34 21.9	98 18.2	Oc 20, 21	10 29.8	63 56.8	25217	38	76.12	W.M.H.
Pauls Valley	34 44.8	97 14.3	Oc 10, 11	9 39.7	64 35.7	24690	38	76.12	W.M.H.
Lindsay	34 51	97 36.8	Oc 13	10 04.2	64 42.6	24524	38	76.12	W.M.H.
Apache	34 54	98 22.4	Oc 17, 18	10 08.8	64 23.6	24590	38	76.12	W.M.H.
McAlester	34 58.2	95 48.8	Oc 8	8 55.2	65 10.6	24225	38	76.12	W.M.H.
Stigler	35 15.4	95 07	Oc 3	8 39.2	65 36.0	23940	38	76.12	W.M.H.
Minco	35 18.3	97 57.6	Oc 15, 16	10 08.9	65 02.0	24174	38	76.12	W.M.H.

OREGON.

				East.					
Grants Pass	42 26.8	123 19.8	My 15	21 15.4	66 12.2	22642	20	31.12	J.W.G.
Glendale C	42 44.0	123 26.4	My 19	21 04.8	66 07	22620	20	31.1	J.W.G.
Glendale A	42 44.2	123 24.4	My 18	21 12.6	66 06.9	22661	20	31.12	J.W.G.
Glendale B	42 44.9	123 24.2	My 18	21 00.7	66 11	22622	20	31.1	J.W.G.
Cottage Grove	43 48.5	123 03.9	My 20	22 31.6	67 20.3	22281	20	31.12	J.W.G.
Eugene	44 03.5	123 05.5	My 21	23 39.4	69 17.0	20394	20	31.12	J.W.G.
Junction City A	44 13.5	123 13.1	My 22	21 30.6	67 53.2	21339	20	31.12	J.W.G.
Junction City B	44 13.9	123 12.6	My 23	21 28.6	.. ....	21366	20	.....	J.W.G.
Corvallis	44 34.3	123 14.6	My 25	21 57.2	67 53.6	21379	20	31.12	J.W.G.
Portland	45 30.8	122 41.6	My 29	23 29.6	68 26.8	20983	20	31.12	J.W.G.
Hillsboro	45 31.6	123 00.4	My 27	22 57.3	68 30.2	21023	20	31.12	J.W.G.
Pendleton, old	45 39.9	118 47.4	Jy 27	22 16.0	69 13.0	20644	20	31.12	F.L.A.
Pendleton, new	45 40.8	118 47.4	Jy 25	21 58.0	69 22.6	20560	20	31.12	F.L.A.

TABLE I.—*Magnetic observations on land in 1914*—Continued.

PENNSYLVANIA.

Station	Latitude	Longitude	Date	Declination	Dip	Horizontal intensity	Instruments		Observer
							M	D.C.	
	° ′	° ′		*West.*	° ′	γ			
Oxford	39 47.4	75 58.7	Au 5	6 50.4	71 35.6	18709	19	36.12	J.R.B.
Quarryville	39 54.5	76 08.5	Au 6	6 49.1	71 29.1	18658	19	36.12	J.R.B.
Coatesville	39 58.8	75 48.1	Au 3, 4	7 36.0	71 32.7	18700	19	36.12	J.R.B.
Manheim	40 10.0	76 22.6	Au 8	7 25.7	71 44.2	18519	19	36.12	J.R.B.
Pottstown	40 14.4	75 39.3	Jy 31-Au 1	7 40.5	71 40.7	18578	19	36.12	J.R.B.
Harrisburg	40 14.7	76 53.9	Au 11	7 21.9	71 52.2	18458	19	36.12	J.R.B.
Womelsdorf	40 21.1	76 10.9	Jy 30	7 20.9	71 47.8	18417	19	36.12	J.R.B.
Elizabethville	40 32.6	76 49.6	Au 13	7 18.8	72 06.2	18209	19	36.12	J.R.B.
Hamburg	40 33.0	75 59.1	Jy 29	7 21.3	72 03.8	18124	19	36.12	J.R.B.
Easton	40 42.2	75 12.1	Jy 23, 24	8 01.8	72 01.3	18321	19	36.12	J.R.B.
Slatington	40 44.8	75 36.2	Jy 27	7 58.8	72 22.3	17946	19	36.12	J.R.B.
Watsontown	41 04.8	76 52.2	Au 29, 31	7 28.7	72 25.6	18047	19	36.12	J.R.B.
Williamsport	41 15.2	76 55.8	Se 1	7 46.2	72 21.1	18077	19	36.12	J.R.B.
Laporte	41 26.4	76 29.4	Se 5	8 21.0	72 34.1	17926	19	36.12	J.R.B.
Blossburg	41 40.4	77 02.8	Se 3	7 33.0	72 56.6	17674	19	36.12	J.R.B.

PORTO RICO.

				West.					
Porto Rico Obs'y	18 08.8	65 26.9	Ja–De	3 00.4	50 33.6	28400	31	1EI	H.W.P.
Do	18 08.8	65 26.9	Mh–Ap	2 57.6	.. ....	28436	17	....	F.N.

SOUTH DAKOTA.

				East.					
Olivet	43 14.1	97 42.1	Jy 24	11 41.6	72 26.5	18511	29	15.12	H.E.M.
Humboldt	43 38.0	97 02.8	Jy 29	11 00.6	73 00.6	17982	29	15.12	H.E.M.
Alexandria	43 38.1	97 46.7	Jy 28	11 09.1	73 03.0	17925	29	15.12	H.E.M.
Colton	43 46.0	96 55.4	Au 3, 4	10 06.6	73 21.6	17689	29	15.12	H.E.M.
Pierre	44 22.0	100 21.1	Au 8	13 04.4	73 00.8	17983	29	15.12	H.E.M.
Miller	44 31.0	98 59.0	Au 7, 8	12 06.1	73 17.3	17662	29	15.12	H.E.M.
Toronto	44 33.5	96 38.1	Au 13	10 38.3	73 52.2	17141	29	15.12	H.E.M.
Castlewood	44 43.0	96 59.9	Au 15	10 41.6	73 43.7	17292	29	15.12	H.E.M.
Clear Lake	44 45.6	96 40.6	Au 14	10 46.7	73 52.5	17148	29	15.12	H.E.M.
Watertown	44 54.3	97 06.3	Au 11, 12	10 40.0	74 02.5	17066	29	15.12	H.E.M.
Milbank	45 13.5	96 37.0	Au 18	10 54.6	74 29.9	16780	29	15.12	H.E.M.
Aberdeen	45 27	98 29.6	Au 20, 21	12 26.8	74 04.5	17026	29	15.12	H.E.M.
Ipswich	45 27	99 00.8	Au 26	13 06.0	74 11.1	16838	29	15.12	H.E.M.
Sisseton	45 39.9	97 02.4	Au 19	11 14.6	74 43.9	16235	29	15.12	H.E.M.
Leola	45 42.3	98 56.6	Au 21, 22	12 33.1	74 20.4	16678	29	15.12	H.E.M.
McIntosh, aux. 1	45 56.3	101 19.6	Se 3	14 25.0	74 04	16888	20	31.1	F.L.A.
McIntosh	45 56.4	101 19.5	Se 2	14 18.4	74 05.2	16952	20	31.12	F.L.A.
McIntosh, aux. 2	45 56.5	101 19.5	Se 3	14 22.0	74 04	16943	20	31.1	F.L.A.

TENNESSEE.

				East.					
Memphis, old	35 07.8	90 04.3	Au 10	5 39.2	66 10.1	23452	38	76.12	W.M.H.
Memphis, new	35 08.3	90 00.7	Au 13, 14	5 29.2	66 14.6	23441	38	76.12	W.M.H.
Athens	35 26.6	84 36	Mh 10	0 32.1	66 31.7	23125	20	31.12	J.W.G.
				West.					
Knoxville	35 56.3	83 56.6	Mh 9	0 24.4	66 59.3	22705	20	31.12	J.W.G.

TEXAS.

				East.					
Marlin	31 18.1	96 54.2	Oc 31	8 58.6	60 56.4	26716	38	76.12	W.M.H.
Lufkin	31 20.8	94 45.4	No 11	8 09.4	61 29.0	26351	38	76.12	W.M.H.
Barstow	31 28.0	103 24.0	Oc 17	11 54.6	59 49.6	27175	17	78.12	F.N.
Groesbeck, old	31 31.5	96 31.9	Mh 21	9 21.4	61 17.9	26623	20	31.12	J.W.G.
Groesbeck, new	31 31.5	96 32.6	Mh 21	9 00.8	61 18.2	26610	20	31.12	J.W.G.

TABLE I.—*Magnetic observations on land in 1914*—Continued.

TEXAS—Continued.

Station	Latitude	Longitude	Date	Declination	Dip	Horizontal intensity	Instruments		Observer
							M	D.C.	
	° ′	° ′		*East.*	° ′	γ			
Monahans	31 36	102 52.1	Oc 20	11 46.6	60 24.0	26938	17	78.12	F.N.
Rusk	31 48.8	95 08.7	No 6	8 13.8	61 52.3	26129	38	76.12	W.M.H.
El Paso	31 49.0	106 22.6	Ap 20	12 20.9	59 37.0	27210	20	31.12	J.W.G.
Odessa	31 51.5	102 23.1	Oc 21, 22	11 32.0	60 43.6	26706	17	78.12	F.N.
Stanton	32 08.0	101 47.8	Oc 26	11 21.0	61 02.4	26492	17	78.12	F.N.
Baird	32 24	99 24.1	Oc 29, 30	10 01.8	62 00.4	26101	17	78.12	F.N.
Eastland	32 24.1	98 48.2	Oc 31	10 14.9	62 03.4	26138	17	78.12	F.N.
Abilene	32 25.8	99 45.4	Oc 28	10 18.8	61 58.6	26224	17	78.12	F.N.
McKinney	33 13.1	96 36.3	Oc 28, 29	9 10.0	62 53.0	25740	38	76.12	W.M.H.
Wichita Falls	33 55.8	98 29.0	Mh 25	10 04.8	63 25.4	25235	20	31.12	J.W.G.
Amarillo	35 11.7	101 49.6	Mh 27	12 15.0	64 16.4	24860	20	31.12	J.W.G.
VERMONT.									
				West.					
South Londonderry	43 11	72 48.0	Je 22	12 54.6	73 52.2	16472	17	78.12	F.N.
Ludlow	43 23.8	72 43.4	Je 25	13 24.4	73 59.3	16523	17	78.12	F.N.
Bethel	43 49	72 36.8	Jy 14, 15	14 10.9	74 11.6	16243	17	78.12	F.N.
Roxbury	44 04.8	72 43.9	Jy 13	15 11.6	74 28.2	16109	17	78.12	F.N.
Vergennes	44 09.9	73 16.6	Je 26, 27	13 08.2	74 39.7	15864	17	78.12	F.N.
Barnet	44 17.9	72 01.0	Jy 27	14 13.2	74 44.6	15703	17	78.12	F.N.
Waterbury	44 20	72 42.5	Jy 6, 7	14 33.8	74 33.4	15962	17	78.12	F.N.
St. Johnsbury	44 24.6	72 00.0	Jy 28	14 38.4	74 43.6	15709	17	78.12	F.N.
Burlington	44 28.5	73 11.7	Jy 1	13 38.7	74 30.5	16053	17	78.12	F.N.
Island Pond	44 47.6	71 52.0	Jy 31, Au 1	15 22.6	74 58.0	15451	17	78.12	F.N.
WASHINGTON.									
				East.					
Goldendale	45 50.8	120 48.6	Jy 23	23 05.8	69 26.8	20509	20	31.12	F.L.A.
Kalama, B	46 00.8	122 52.8	Jy 21	23 00.0	.. ....	20718	20	.....	F.L.A.
Kalama, A	46 00.9	122 52.7	Jy 21	22 33.4	68 50.1	20673	20	31.12	F.L.A.
Kalama	46 00.9	122 52.8	Jy 20	23 04.4	68 54.0	20866	20	31.12	F.L.A.
Walla Walla	46 04.0	118 23.2	Jy 28	21 59.0	70 26.0	19692	20	31.12	F.L.A.
Ritzville	47 08.3	118 20.4	Au 5	22 54.2	71 06.2	19277	20	31.12	F.L.A.
Dayton	46 18.8	118 00.9	Jy 30, 31	22 18.6	70 34.8	19425	20	31.12	F.L.A.
Chehalis	46 39.8	122 55.6	Jy 17	23 19.6	69 22.2	20439	20	31.12	F.L.A.
South Bend	46 40.6	123 48.5	Jy 14, 15	24 03.2	69 11.3	20528	20	31.12	F.L.A.
Spokane	47 43.1	117 31.2	Au 6	23 40.2	71 44.8	18654	20	31.12	F.L.A.
Lacrosse	46 49	117 54.6	Au 1, 3	22 41.1	70 57.6	19269	20	31.12	F.L.A.
Montesano	46 59.1	123 38.4	Jy 10	24 02.6	69 52.8	19914	20	31.12	F.L.A.
Shelton	47 13.5	123 07.7	Je 29, 30	23 28.3	70 02.4	19746	20	31.12	F.L.A.
Seattle, new	47 33.1	122 15.2	Jy 7	23 44.2	70 36.0	19278	20	31.12	F.L.A.
Seattle, old	47 39.6	122 18.3	Je 4	23 46.6	70 43.7	19298	20	31.12	J.W.G.
Do	47 39.6	122 18.3	Je 25, 26	23 49.6	70 39.8	19313	20	31.12	F.L.A.
WISCONSIN.									
				East.					
Genoa Junction	42 30.6	88 19.4	Oc 1	2 36.2	73 11.6	17734	20	31.12	F.L.A.
Lake Geneva	42 35.8	88 25.3	Se 30	3 29.6	73 08.0	17802	20	31.12	F.L.A.
Burlington	42 39.8	88 17.4	Se 24, 25	2 52.2	73 14.0	17727	20	31.12	F.L.A.
Racine	42 43.2	87 46.2	Se 23	2 12.4	73 19.6	17511	20	31.12	F.L.A.
Milwaukee	43 04.0	87 52.2	Se 22	3 05.4	73 50.0	17321	20	31.12	F.L.A.
La Crosse, new	43 50.1	91 13.5	Se 9	5 24.9	74 08.4	16853	20	31.12	F.L.A.
La Crosse, old	43 50.3	91 14.0	Se 7, 8	5 28.0	74 05.4	16889	20	31.12	F.L.A.
Appleton	44 15.8	88 26.4	Se 21	2 25.6	74 47.8	16225	20	31.12	F.L.A.
Durand	44 38.7	91 56.6	Se 11	5 48.9	74 33.2	16527	20	31.12	F.L.A.
Marshfield	44 40.0	90 09.1	Se 19	4 38.0	74 43.9	16273	20	31.12	F.L.A.
Colby	44 54.9	90 18.3	Se 16	5 02.0	75 00.7	15974	20	31.12	F.L.A.
Stanley	44 56.8	90 55.5	Se 15	5 31.1	75 05.2	15989	20	31.12	F.L.A.

SEA OBSERVATIONS.

TABLE II.—*Magnetic observations at sea.*

PACIFIC OCEAN.

Station	Latitude	Longitude	Date	Declination	Dip	Horizontal intensity	Total intensity	Ship	Headings	Sea
	° ′	° ′		*East.*	° ′	*c.g.s.*	*c.g.s.*			
At sea	21 16	158 05	My 2	.. ..	39 27	.2906	.3763	Patterson	8	Lt. sw.
Do	23 02	158 27	My 3	10 18	41 02	.2857	.3788	do	8	Lt. sw.
Do	24 28	158 15	My 4	11 06	43 20	.2795	.3843	do	8	Lt. sw.
Do	26 14	158 06	My 5	11 36	45 05	.2766	.3917	do	8	Mod. sw.
Do	30 34	159 16	My 7	13 00	49 26	.2668	.4103	do	8	Mod. sw.
Elliott Bay	47 36	122 24	Ap 19	24 02	.. ..	....	....	McArthur	16	Sm.
Do	47 36	122 24	Ap 20	23 57	.. ..	....	....	do	16	Sm.
Off Point Townsend	48 06	122 42	Ap 22	23 51	.. ..	....	....	do	8	Sm.
Fraser Reach	53 18	129 05	Ap 27	28 10	.. ..	....	....	do	13	Sm.
Do	53 20	128 55	Ap 27	26 52	.. ..	....	....	do	11	Sm.
At sea	54 23	130 57	Ap 28	28 39	.. ..	....	....	do	8	Sm.
Nichols Passage	55 13	131 38	My 6	29 19	.. ..	....	....	do	8	Sm.

DESCRIPTIONS OF STATIONS.

Magnetic observers are instructed to mark each station (except auxiliary stations for development of local disturbance) in as permanent a manner as possible, either with a stone, a drain tile filled with cement, or a post of some durable wood, so that it may be available for future occupation. They are also required to furnish a sufficiently detailed description to locate the station even if the marking should be destroyed, and to determine the bearings of two or three prominent objects in addition to the one used as a reference mark in the azimuth and declination observations. The information is given in abridged form on the following pages. Further details can usually be obtained upon application to the Superintendent of the Coast and Geodetic Survey.

The usual method of marking a station is by a stone post about 30 inches long and 6 inches square, set so as to project 2 or 3 inches above the ground. In the center of the top is set a circular brass plate $3\frac{1}{2}$ inches in diameter.

When the local authorities desire it and are willing to bear the expense, a second stone is set to mark the true meridian.

The descriptions of stations are arranged alphabetically by States and by names of stations.

ALABAMA.

Anniston, Calhoun County.—The station of 1910 was reoccupied. It is situated in a field about 350 feet east of the intersection of Eleventh and Christine Streets and south of Eleventh Street. It is about 174 feet from the center of a road to the south, and 115 feet from the fence to the east. The station is marked by a granite rock 8 by 8 by 30 inches, projecting 4 inches above the ground, with a station marker in the top. The following true bearings were determined:

	° ′
Spire of Methodist Episcopal Church (mark)	79 33. 5 west of south
Northeast edge of roof of residence north of building at northeast corner of Eleventh and Christine Streets	28 59. 6 west of north
Extreme southwest edge of roof of a residence	2 59. 0 west of north

Double Springs, Winston County.—The station is in the southeastern part of the ground surrounding the high school, east of the road on the east side of the school building, and about one-fourth mile southwest from the courthouse. It is 157.7 feet east from the southeast corner of the high-school building and 66.5 feet southwest from the southwest corner of a fenced field to the northeast. The station is marked by a limestone post 6 by 6 by 32 inches, projecting about 5 inches above the ground, and having a bronze magnetic station mark in the top. The following true bearings were determined:

	° ′
Top of public school cupola (mark)	0 27. 6 west of north
Top of church cupola	12 27. 0 east of north
Upper northwest corner of courthouse under eaves	20 34. 7 east of north

ALABAMA—continued.

A cement post 5 by 6 by 30 inches was set about 212 feet to the north to mark the true meridian. It projects about 6 inches above ground.

Hamilton, Marion County.—The station is in the southeastern part of the ground surrounding the high school, about 1,000 feet southwest from the town's center. It is 33.4 feet northeast from the fence on the northeast side of the baseball ground, 66.9 feet northwest from the fence to the southeast, and 158.5 feet southeast from the southeast corner of the high-school building. It is marked by a limestone post 6 by 6 by 30 inches, projecting about 5 inches above the ground, with a hole 1 inch in diameter and 3 inches deep drilled in the top to indicate the exact spot. The following true bearings were determined:

	° ′
Top of Baptist Church cupola (mark)	9 47.2 west of north
South gable of J. P. Ford's house	19 11.6 west of north
North gable on State farm barn	38 30.4 west of south

Heflin, Cleburne County.—The station is in the southeastern corner of the ground surrounding the high school, about one-fourth mile southeast of the town's center. It is 82.8 feet northwest from the lower northwest corner of the Davis A. O'Keefe monument and 154 feet southeast from the southeast corner of the high-school building. The station is marked by a brown stone post 6 by 6 by 33 inches, projecting about 7 inches above the ground, and having a bronze magnetic station mark in its top. The following true bearings were determined:

	° ′
West gable of Dr. Duke's house (mark)	0 09.2 west of north
Top of cupola of public schoolhouse	33 32.9 west of south
Top of steeple	29 48.1 east of north
Lower southwest corner of high-school building	69 52.3 west of north

About 280 feet south, on State land, a marble post 6 by 8 by 12 inches was set in a large mass of cement with its top projecting about 4 inches above the ground to mark a meridian line. This post is marked at the top by a cross and the letters S. M.

Huntsville, Madison County.—The station of 1910 was reoccupied. It is in the southwestern part of the public-school grounds, about one-half mile northeast of the courthouse square. The station is 75.5 feet from the southwest corner of the schoolhouse, 18.4 feet south and east from a large oak tree 4 or 5 feet in diameter, and 50.9 feet from the center of the brick sidewalk on Calhoun Street. It is marked by a limestone post 5 by 5 by 24 inches, lettered U. S. 1910, and projecting 1 inch above ground. The following true bearings were determined:

	° ′
Spire of Episcopal Church (mark)	30 51.5 west of south
Point of gable cornice of large business building seen just over hip roof of small dwelling	49 42.3 west of south
Peak of tower of Dallas Mill	3 13.7 west of north

Vernon, Lamar County.—The station is in the southeastern part of the ground surrounding the high school, about one-fourth mile southwest from the town's center. It is 54.5 feet from the fence to the south, 126.7 feet from the fence across the road to the east, 227.8 feet southeast from the southeast corner of the high-school building. The station is marked by a limestone post 6 by 6 by 30 inches, projecting about 5 inches above the ground, and having a bronze magnetic station mark in its top. The following true bearings were determined:

	° ′
South gable of farmhouse (mark)	4 48.8 west of north
Northeast corner of high-school building just above front portico	7 12.3 west of north
West gable of house east across the road from high-school building	37 42.1 east of north

ALASKA.

Dutch Harbor.—The station is on Amaknak Island on the hill just southeast of the village of Dutch Harbor, near the station of 1908. It is about 164 feet south of a water tank covered with sod and 98 feet south of the azimuth mark, on a line from the azimuth mark to the astronomical station in Unalaska. The station is marked by a bottle with its top 1 foot below the surface and by a bowlder 6 by 10 by 16 inches, with a 1-inch drill hole to mark the exact spot. The astronomical station at Unalaska bears 0° 01.0 west of true south.

Ketchikan.—The station of 1907 was reoccupied. It is on the northeastern end of Pennock Island, in front and a little north of the northern Indian burial ground. It is about 60 yards from the end of the island, 5 yards from high-water mark, and 50 yards east of a large spruce tree which is blazed on its northern face about 8 feet above the ground. The station is marked by a cement block about 1 foot square projecting about 3 inches above the surface and lettered U. S. C. & G. S., 1907. The following true bearings were determined in 1907:

	° ′
Flagpole on schoolhouse cupola	45 35.1 east of north
Sharp peak south of Ketchikan	80 01.1 east of north
East end of wharf on Pennock Island	72 44.4 east of south

ALASKA—continued.

Kupreanof Harbor.—The station is on the top of the largest and highest of the several small, rocky islets in the western side of Kupreanof Harbor, Paul Island. These islets are about one-fifth of a mile inside and to the northward of the northward entrance to the harbor; about 60 meters from shore, and about 270 meters to the southward of the ranch houses. The station is also known as hydrographic signal Lum. It is marked by a concrete pier 8 inches square, projecting about 3 inches above the surface of the ground.

ARIZONA.

Yuma, Yuma County.—The station of 1905 being no longer suitable for magnetic observations, a new station was established on the grounds of the Indian school across the Colorado River from Yuma. The buildings of the school are on a hill. The magnetic station is on a shoulder of this hill at the west end. It is 70 yards down the slope of the hill from a small gateway, which is the west entrance to the grounds. It is 12 feet north of the middle of a path which leads from this gateway down over the shoulder of the hill; also 119.4 feet from a bench mark of the United States Reclamation Service, consisting of a brass plate set in the top of a 3-inch iron pipe extending about 18 inches above ground. The station is marked by a brass magnetic station mark set in cement in the end of a 6-inch sewer tile 24 inches long and extending about 2 inches above the ground. The following true bearings were determined:

	° ′	
Base of flagstaff on courthouse (mark)	21 13.9	west of south
United States Reclamation Service bench mark	0 08.9	east of south
Tip of dome on Yuma grammar-school building	16 16.2	west of south
Highest point of Cago Muchacho Mountain	42 12.0	west of north
Highest point of Muchacho Mountain	9 09.2	west of north

Observations were also made as near the station of 1905 as could be determined from the changed surroundings.

ARKANSAS.

Berryville, Carroll County.—The station is in the northwest corner of the field within the race track at the county fairgrounds, about three-fourths mile northwest from the town's center. It is 85.5 feet east from the fence surrounding the field and 175.5 feet northwest from the southwest corner of the fairground keeper's house. The station is marked by a limestone post 6 by 6 by 34 inches, projecting about 9 inches above the ground, with a brass magnetic station mark in the top. The following true bearings were determined:

	° ′	
Top of northwest cupola of St. George Hotel (mark)	19 58.5	east of south
Top of northeast cupola of courthouse	15 44.2	east of south
Top of town water tank	13 12.8	east of south
Top of high-school cupola	37 19.0	west of south

De Witt, Arkansas County.—The station is in the western part of a grove of trees belonging to R. W. Dudley, northwest from R. D. Pasco's house, west of Mr. Dudley's house, and about one-half mile northwest from the town's center. It is 78.9 feet north from the north boundary fence of Mr. Pasco's property, 90 feet northeast from the northwest corner of this property, and 148.7 feet southwest from the iron pump belonging to R. W. Dudley. The station is marked by a limestone post 6 by 6 by 33 inches projecting about 6 inches above the ground and having a brass magnetic station mark in the top. The following true bearings were determined:

	° ′	
Lower northeast corner of Junius Kennedy's house	37 53.4	west of north
Lower northwest corner of Thomas Bower's house	36 56.4	west of south
Lower northeast corner of Dr. C. W. Pasco's house	1 04.5	east of south

A south meridian post was set about 192 feet distant. It is in the southwest corner of R. D. Pasco's field, about 42.5 feet from the west fence and about 53.5 feet from the south fence. It consists of a cement block 8 inches square at the top, 12 inches square at the bottom, and 12 inches deep, set in cement with a hole in a cross at the top.

Eureka Springs, Carroll County.—The station is in the south angle of a triangular piece of land, formed by a road making a turn to the northeast, across two lots and forming the hypotenuse of a right triangle with a fence to the north and a fence to the west. This triangle is west of George Martin's house, about 1,000 feet northwest from the city standpipe, and about 1 mile northwest from the town's center. The station is 36.9 feet from the fence along the field to the west, 110 feet southwest from the south end of George Martin's front picket fence, and 47 feet a little west of south from the center of the trunk of a large oak tree. It is marked by a limestone post 6 by 6 by 20 inches, with a magnetic station marking plate set in the top, which is about 1 inch above the ground. The following true bearings were determined:

	° ′	
South gable of Charles Perkins's house (mark)	83 51.9	east of north
Upper west edge of city standpipe, under top	12 43.8	east of south
Lower northwest corner of George Martin's house	38 27.0	east of north

ARKANSAS—continued.

Declination observations were also made in the northwest end of Ridgeway Avenue, but this place proved unsuitable for magnetic work.

Jonesboro, Craighead County.—The station of 1901 was reoccupied. It is on the grounds of Mrs. Warner, just south of the town and at the end of Main Street. A meridian line was established in 1901 with the north stone just at the fence and the south stone on the hill. The south stone was used as the magnetic station. The station was marked with an 8-inch stone projecting about 4 inches above ground. The distance between the meridian stones is 880.9 feet. The following true bearing was determined in 1901:

	° ′
Eastern edge of water tower near top (mark)	0 11.2 east of north

Lake City, Craighead County.—The station is on Cane Island, about 1½ miles northeast from the town's center on the east side of the road to Moneth and east from the first inclosed field north from the mile bridge. It is also about halfway between the north end of the mile bridge and a small wooden bridge to the north along the road. It is 84 feet southeast from the fence on the east border of the field across the road, 82 feet southwest from a triangle of galvanized nails set about 1½ feet above the ground in the trunk of a large oak tree, 63.8 feet northwest from a cross of galvanized nails about 1½ feet above ground in a tree trunk, 28.5 feet northwest from a vertical line of galvanized nails in a blaze about 2 feet above the ground in a tree trunk, and 10 feet east from the center of the top of a large tree stump. The station is marked by the neck of a glass bottle buried 6 inches under ground and supported by another glass bottle set vertically with the neck down. The following true bearings were determined:

	° ′
Lower part of northwest vertical beam of west rail of the mile bridge	28 28.7 west of south
Cross of galvanized nails about 5 feet above the ground in a tree trunk	21 29.4 west of south
Square of galvanized nails about 4½ feet above the ground in a tree trunk	31 27.7 east of south

Melbourne, Izard County.—The station is in the western part of a grove of trees belonging to T. P. Powell, about 350 feet northeast from Mr. Powell's house and about one-half mile southeast from the town's center. It is 206.5 feet southeast from the center of a tree trunk forming the east gatepost at the northwest corner of Mr. Powell's property, 125.2 feet northeast from the northeast corner of a wooden bridge across the branch to the south, and about 225 feet southwest from a large circular swing. The station is marked by a limestone post 6 by 6 by 27 inches with a magnetic station mark in the top, and projecting about 8 inches above the ground. The following true bearings were determined:

	° ′
South gable of M. F. Hill's feed stable (mark)	18 45.4 west of north
Cross of galvanized nails about 5 feet above ground in the trunk of an oak tree near east end of south fence	36 38.7 east of south
Vertical line of galvanized nails about 5 feet above ground in the trunk of an oak tree about 12 feet southwest of the gate	58 12.9 west of north

Mountain View, Stone County.—The station is in the western corner of the ground surrounding the public school, about one-half mile southeast from the town's center. It is 63.1 feet from the southwest boundary fence, 78.6 feet from the northwest boundary fence, and 156.5 feet southwest from the southwest corner of the school building. The station is marked by a limestone post 6 by 6 by 30 inches, projecting about 5 inches above the ground, and having a brass marking plate in the top. The following true bearings were determined:

	° ′
Top of Methodist Church steeple (mark)	48 08.1 west of north
Gable above southeast roof window of Mr. Edmundson's house	31 48.8 east of north
East gable of Case's Hotel	33 59.1 west of north

Pocahontas, Randolph County.—The station is on the east side of the road running past the high school in a clearing, east across the road from Elijah Dalton's house, about 1¼ miles north from the town's center, on land belonging to the Shoonover family. It is about 272 feet east from the east fence of Elijah Dalton's property, 78.5 feet a little south of west from a cross of galvanized nails about 1 foot above the ground in the trunk of a triple oak tree, 57.3 feet northwest from a vertical line of galvanized nails about 1 foot above the ground in the trunk of a double oak tree, and 98.5 feet south from a triangle of galvanized nails about 1 foot above the ground in the 2½ feet trunk of an oak tree. It is marked by a limestone post 6 by 6 by 30 inches, with a marking plate set in the top, which is about 6 inches above the ground. The following true bearings were determined:

	° ′
Center of northeast corner of north projection of Elijah Dalton's house (mark)	86 05.9 west of north
Center of flat top of cupola of Men Carter's house	46 26.3 west of south

Powhatan, Lawrence County.—The station is on a hill about 700 feet southwest from the courthouse and a litttle south of east from the schoolhouse. It is 59 feet west from a cross of galvanized nails about 1 foot from the ground in the trunk of a locust tree, 138.3 feet southeast from a triangle of galvanized nails about 1 foot above the ground in the trunk

ARKANSAS—continued.

of a red elm tree, and 248.8 feet southeast from the southeast corner of the schoolhouse. The station is marked by a cross cut in the top of a firmly set bowlder which shows about 4 inches above the ground and has a length above the ground of about 8 inches and a breadth of about 7 inches. The following true bearings were determined:

	° ′
Upper northwest corner of courthouse, under eaves (mark)	53 56.6 east of north
Top of courthouse cupola	59 55.0 east of north
Upper northwest corner of jail, under eaves	37 31.5 east of north
East gable of first house west of jail	15 37.0 east of north

Van Buren, Crawford County.—The station of 1905 was reoccupied. It is in Fairview cemetery, just north of the town and near the center of the grounds, being near the north side of the main east and west driveway. It is 22.9 feet from the cornerstone at the northwest corner of the southeast quarter, 17.1 feet from the stone at the southwest corner of the northeast quarter. It is also 10.6 feet from a small cedar tree bearing 20° east of north. The station is marked by a limestone post 6 by 6 by 30 inches, set 29 inches in the ground lettered U. S. C. & G. S., 1905. The following true bearings were determined in 1905:

	° ′
Top of iron post to right hand of arch (mark)	8 48.9 west of south
Center of top of monument to wife of R. P. Allen	16 58.2 east of north
Methodist Church spire	10 55.4 west of south

CALIFORNIA.

Barstow, San Bernardino County.—The station of 1906 was reoccupied. It is nearly in line with the east end of the new Harvey Hotel and the top of the small hill to the south. It is between a line of fence posts just north of town and a fence on the southern boundary of a field immediately on the south bank of the river. The station is marked by a rough piece of red tufa rock, 5½ by 6½ by 30 inches, showing about 6 inches above the ground, with the highest point marking the exact spot. The following true bearings were determined in 1910:

	° ′
Upper east edge of eastern one of three iron tanks (mark)	43 19.1 east of south
North gable of roof of building marked Barstow Ice Co	61 17.8 east of south
North gable on roof of small windowless cabin	52 28.7 east of south

Chico, Butte County.—The station (A) is in the Chico Cemetery and is near the northeast part of the grounds. It is in the middle of a driveway leading to the small inclosure for Chinese at the northeast corner of the cemetery and at the intersection of this driveway with another at right angles to it. The station is 154.7 feet from the gatepost at the southwest corner of the inclosure for Chinese, 96.2 feet from the line of fence along the east side of the grounds, and 15.4 feet from the northeast corner of the hewn granite border around the Stillman burial plat. It is marked by a hardwood peg, 1 inch square and projecting about three-fourths inch above the ground. The following true bearings were determined:

	° ′
Tip of western one of two city water towers (mark)	7 52.8 west of south
Tip of eastern water tower	6 39.0 west of south
Tip of water tower of Lindo Nursery Co	5 30.4 east of south
Tip of water tower to northwest	31 37.9 west of north

To test for local disturbance observations were also made at station B, about one-third of a mile nearly due east from station A, in a field belonging to Mr. McLaughlin, and at station C, near the northeast corner of the high-school grounds, about one-half mile southwest of station A.

Dunsmuir, Siskiyou County.—The station is near the southwest corner of a pasture just back of Mr. Clausnitzer's residence. It is on a steep hillside. A small spot which was nearly level was found on which the station was placed. It is 27.9 feet from a fence line on the south side of the plat, 80.5 feet from the west line, and 71½ feet from a small wooden reservoir tank used by Mr. Clausnitzer as a private water supply. The land where this station is located is about 125 feet above the town. The station is marked by a 6-inch sewer tile, 24 inches long, filled with concrete and having a brass magnetic station mark set in the top. The top of the tile is about 2 inches above the ground. The following true bearings were determined:

	° ′
Highest point on Mount Shasta (mark)	17 11.6 east of north
Base of pole on cupola of public school	89 12.1 east of north
Tip of belfry of Methodist Episcopal Church	77 34.2 east of south
Base of cross on Episcopal Church	82 53.5 east of south

Gazelle, Siskiyou County.—The station of 1908 was reoccupied. The Gazelle astronomic station is located on top of a bowlder-covered knoll bearing about 250 yards north by east from the Gazelle railway station, and almost due east and across the track from the stock pens. It is marked by a circular brass disk cemented in rock about 8 inches below the surface of the ground. East of the station and distant 28.6 feet is a concrete latitude and longitude pier.

CALIFORNIA—continued.

The magnetic station is 490.5 feet from the astronomic station on the flat at the southeast side of the knoll. It is 59 feet from the fence on the south, 138 feet from a fence on the west, and 247 paces from the railway track. The magnetic station is marked by a rough stone 6 by 6 by 16 inches, projecting about 1 inch above the ground and lettered U. S. The following true bearings were determined in 1908:

	° ′	
Upright bar of letter F on the I. O. O. F. Hall (mark)	33 51.2	west of south
Small spire at east end of ornamental ridge of railway station	47 12.3	west of south
Gazelle astronomic station	67 21.2	west of north

Indio, Riverside County.—The station of 1905 was reoccupied. It is on Indian land about 700 or 800 feet a little east of south of the Southern Pacific Railroad station. It is east of the schoolhouse and north of a road running east and west. It is 187.7 feet from a fence to the south, 235.8 feet from a fence to the west, about 213 feet northeast of a plank shack used as a jail, and 58 yards from the third telephone pole east of the street running south from the railroad past the schoolhouse. The station is marked by a discarded brass or bronze pressure tank, about 15 inches long, one end having a three-fourths-inch hole in the center. This end was placed up, the center of the hole marking the exact spot. It was covered by a heap of earth about 2½ feet high. The following true bearings were determined:

	° ′	
Tip of railroad water tank west of station (mark)	11 10.1	west of north
Tip of railroad water tank east of railroad station	21 40.8	east of north
Highest point on nearby mountain range	58 10.8	west of south

Red Bluff, Tehama County.—The station of 1906 was reoccupied. Azimuth observations were made over a hewn granite post 4 feet long, projecting 1½ feet above the ground, 6½ by 7 inches on top, with a cross marking the center. This north meridian stone is lettered on its north vertical face 1897, on its east face Magnetic Station, and on its west face U. S. C. & G. S. It is located about 1¼ miles northwestward from the county courthouse, and is on the line forming the northeastern boundary of Johnson Street, and is about 648 feet from the northwestern line of Breckenridge Street. A similar post to this north meridian stone was located 970 feet true south of it, on the southern edge of the county road. This south meridian stone is lettered on its west vertical face Mer. Mark, on its south face 1897, and on its north face U. S. C. & G. S. The magnetic station is on the line joining the center of the north meridian stone with the flagpole on the belfry of the Red Bluff public school, when this line is extended 15 feet from the center of the stone. The following true bearings were determined at the north stone in 1914:

	° ′	
Flagpole on belfry of schoolhouse (mark)	40 27.1	east of south
Presbyterian Church spire	67 19.7	east of south
Tip of belfry on town hall	66 08.6	east of south
Base of flagstaff on city fire department	45 19.6	east of south
Tip of spire on small church (about 700 feet distant)	58 02.5	east of south

San Bernardino, San Bernardino County.—The station of 1910 was reoccupied. It is in the southwest corner of the grounds of the county hospital, about 1 mile southwest of the courthouse. It is 70.3 feet east of a fence made with posts of driven piles and 76.5 feet north of another fence. The station is marked by a granite post 6 by 8 by 40 inches, projecting about 12 inches aboveground, and lettered U. S. C. & G. S., 1910. The following true bearings were determined:

	° ′	
Upper northwest corner of main hospital building, edge of bricks (mark)	59 08.9	east of north
Northwest corner of small cement building just under eaves of roof	66 22.3	east of north
Point of northwest corner post of railing above porch at north end of main building	58 16.9	east of north

Stockton, San Joaquin County.—The station of 1906 was reoccupied. It is in the northwestern corner of the rural cemetery, about 2¼ miles north of the county courthouse. The azimuth station is marked by a smooth white marble post 4 inches square on top and 4 feet long, projecting 18 inches above the ground. The post is lettered on its vertical faces, Magnetic Station, U. S. C. & G. S., 1897. The post is placed on a dike, 16 feet from the north fence of the cemetery and 30.5 feet from the northwest corner, as measured along the fence line. The magnetic station is in the line joining the center of the marble post with the spire of the Central Methodist Episcopal Church and is 10 feet from the center of the south face of the post. The following true bearings were determined at the azimuth station:

	° ′	
Spire of Central Methodist Episcopal Church (mark)	6 22.4	east of south
Pole on roof of square tank house	14 52.5	west of south
Spire of small church	15 09.0	west of south
Apex of square tower	20 05.7	west of south
Upper northwest corner of car barn	9 38.9	west of south

COLORADO.

Trinidad, Las Animas County.—The station of 1903 was reoccupied. It is on a high knoll in the southeast part of the town. It is about 30 feet from the west, north, and east sides of the knoll and is marked by a granite post, 6 by 8 inches on top, projecting about 8 inches above ground. The following true bearings were determined in 1914:

	° ′	
Simpson's rest monument (mark)	35 53.2	west of north
Perpendicular cliff 4 miles distant	1 05.5	west of north
Cupola of schoolhouse	70 02.3	west of north
Spire of Jewish Church	83 22.5	west of south

DELAWARE.

Wilmington, Newcastle County.—The station of 1905 could not be located exactly, but observations were made on the same low bluff in Brandywine Park, about midway between the Baltimore & Ohio and Washington Street bridges over Brandywine Creek. This bluff is nearly opposite the end of Van Buren Street, but a little to the west. The point where observations were made was near the highest point of the bluff. The station was not marked on account of grading operations not being completed.

FLORIDA.

Archer, Alachua County.—The station is in the southwestern corner of the grounds surrounding the Magnolia Hotel, about one-fourth mile northwest from the town's center. It is 94.6 feet north from the boundary fence on the south, 97.5 feet east from the boundary fence on the west, and 147.5 feet southwest from the southwest corner of the front piazza of the Magnolia Hotel. The station is marked by a limestone post 6 by 6 by 30 inches, projecting about 3 inches above the ground, and having a brass magnetic station marker set in the top. The following true bearings were determined:

	° ′	
Top of Seaboard Air Line water tank (mark)	88 50.3	east of north
Upper northwest corner of C. P. Wood's general store	54 37.2	east of south
Upper southeast corner of Magnolia Hotel under eaves	43 23.4	east of north

Blountstown, Calhoun County.—The station is on land belonging to Mr. H. B. Gaskin, about 1 mile southwest from the town's center. It is on the southeast corner of section 32, township 1 north, range 8 west, Tallahassee Mer., on the base line running east and west about three-fourths mile south of the town's center. It is 103.7 feet from a vertical row of brass tacks, guarded at the top by a steel nail projecting 1 inch, in a tree trunk which bears 10° 11.′7 west of north. It is also 206.5 feet from a cross of brass tacks, guarded at each end by a steel nail projecting 1 inch, in a tree trunk which bears 89° 26.′3 east of north. The station is marked by a limestone post 6 by 6 by 32 inches, which projects about 4 inches above the ground, and is lettered U. S. C. & G. S., 1914, with a hole in the center.

A cement post 6 by 6 by 30 inches, pointed at the top and projecting 4 inches above the ground, was set 400 feet due north of the magnetic station to mark the north end of a meridian line.

Bonifay, Holmes County.—The station is in the northwestern corner of the grounds surrounding the residence of Judge P. W. Tew, about one-half mile north from the town's center. It is 96 feet south from the boundary fence to the north, 75.4 feet east from the fence to the west, and about 230 feet northwest from the residence. It is marked by a limestone post 6 by 6 by 33 inches, with a magnetic station marking plate set in the top, which is about 3 inches above the ground. The following true bearings were determined:

	° ′	
Center of northwest edge of an old brick chimney (mark)	64 18.1	east of north
North gable of J. Henry Buttram's house	76 41.0	east of south
South gable of J. Henry Buttram's house	66 49.4	east of south
East gable of a residence	26 11.8	west of south
North gable of a residence	58 29.0	west of south

Bradentown, Manatee County.—The station is in the southeastern corner of the lawn and citrus orchard surrounding the bungalow of Mr. K. C. Attwood, about three-fourths mile east from the town's center. It is 93.5 feet north from the boundary fence on the south, 136.7 feet southeast from the southeast post of the piazza of Mr. Attwood's bungalow, and about 37 feet west from a clump of bambo. The station is marked by a limestone post 6 by 6 by 32 inches, projecting about 6 inches above the ground, with a brass magnetic station marker in the top. The following true bearings were determined:

	° ′	
Base of flagstaff of courthouse cupola (mark)	85 02.1	west of south
South gable of a yellow house across the river	34 02.0	west of north

FLORIDA—continued.

Bristol, Liberty County.—The station is on land belonging to Mr. Brose Ramsay, and is about one-fourth mile northwest from the town's center and about 480 feet west from the courthouse. It is 289 feet west from the north corner of the hall of the Woodmen of the World, and 149 feet northeast from a wire boundary fence. It is marked by a limestone post 6 by 6 by 32 inches, with a magnetic station marker set in the top, which is 2 inches above the ground. The following true bearings were determined:

	°	′	
Center of northeast corner of courthouse (mark)	74	32.8	east of south
North gable of Methodist Church	44	15.6	east of south

Clearwater, Pinellas County.—The station is in the southeast corner of the north oval in the Boulevard of a real estate project called Plaza Park, about 1 mile northeast from the town's center. It is 104.3 feet southeast from the southeast corner of a small house on lot No. 5, 118.8 feet northeast from the northeast corner of the fence surrounding the house on the southwest corner of Second Street and the Boulevard, and 196.9 feet south from the center of the trunk of a lone pine tree in the northern part of the oval. It is marked by a limestone post 6 by 6 by 32 inches, projecting about 3 inches above the ground, and having a brass magnetic station marker set in the top. The following true bearings were determined:

	°	′	
East gable of Plaza Place (mark)	23	47.8	west of south
North gable of a house on southeast corner of First Street and the Boulevard	7	17.3	east of south
East gable of Plaza Place barn	32	13.1	west of south

Dunnellon, Marion County.—The station is in the northwest corner of a grove of pine trees belonging to the phosphate company, about 600 feet northeast from the baseball grounds, and about one-half mile north from the town's center. It is 126.7 feet northeast from the northeast corner of a fenced field, 121.1 feet southeast from the boundary fence to the northwest, and 128.2 feet southeast from a telegraph pole near the northwest fence corner of the grove. The station is marked by a limestone post 6 by 6 by 32 inches, projecting about 2 inches above the ground, with a brass magnetic station marker in the top. The following true bearings were determined:

	°	′	
Top of Catholic Church steeple (mark)	54	20.9	west of south
Top of negro church cupola	10	44.6	east of south
Top of schoolhouse cupola	23	49.4	west of south
Top of a church steeple near to the schoolhouse	27	03.7	west of south
East edge of phosphate works water tank	32	13.5	west of north

Fernandina, Nassau County.—The station of 1908 was reoccupied. It is on the Indian mound about 1,200 feet north of Center Street and three-fourths mile west of the Amelia Island Lighthouse. The station is 52 feet south of the remains of a hedge, 300 feet north of Broome Street, and about 300 feet east of the street running north by the waterworks. It is marked by a limestone post 5 by 8 by 30 inches, projecting about 2 inches above ground, and lettered U. S. C. & G. S., 1908. The following true bearings were determined in 1908:

	°	′	
Top of Amelia Island Lighthouse (mark)	86	44.0	east of south
West edge of standpipe	20	42.0	west of south
Cupola on county courthouse	63	21.0	west of south
Cupola on small wooden church	75	41.0	west of south

Gainesville, Alachua County.—The station of 1900 was reoccupied as nearly as could be determined.

As the station was found to be no longer suitable for magnetic observations, a new station was established in the southeastern part of the campus of the Florida University, about 2 miles west from the town's center, and about 650 feet east from the engineering building. It is 177.2 feet west from the fence on the east boundary of the campus, and 358 feet north from the fence on the south boundary. The station is marked by a granite post 6 by 6 by 33 inches, projecting about 7 inches above the ground, and lettered U. S. C. & G. S., 1914. The following true bearings were determined:

	°	′	
Top of fertilizer factory water tank (mark)	70	58.6	east of south
Center of top of smokestack of city light plant	79	08.4	east of south
Southeast corner of stone post at top of central south gable of Language Hall	40	28.4	west of north
Southeast gable point of Agricultural Building	80	59.2	west of north

A similar post was set about 400 feet due north of the magnetic station to mark the north end of a meridian line. The post shows about 5 inches above the ground.

FLORIDA—continued.

Green Cove Springs, Clay County.—The station is in the northern part of the baseball grounds of the old Military Academy, now deserted. This ground is northeast across the road from the academy building, and is about one-half mile northeast from the town's center. The station is 182.7 feet from the boundary fence to the southwest, 207.4 feet from the boundary fence to the northwest, and 44.9 feet southeast from the nearest point of the home plate of the baseball diamond. It is marked by a limestone post 6 by 6 by 32 inches, projecting about 3 inches above the ground, and having a brass magnetic station marker in the top. The following true bearings were determined:

	° ′
Base of spire of Episcopal Church (mark)	32 32.1 east of south
North gable on gate shed covering steps over fence	1 23.9 west of south
South gable of a residence	52 02.0 west of north

Jasper, Hamilton County.—The station is in the first inclosed field to the north through the first iron gate to the east about 1,200 feet from the depot southeast along the Georgia Southern & Florida Railway track. This field contains a row of seven small cabins in a line extending north and south, and belongs to the McGlochlan estate. It was used at one time as a chicken farm. The station is 62.4 feet from the boundary fence on the west and 241 feet north from the boundary fence to the south. It is marked by a limestone post 6 by 6 by 32 inches, which shows about 3 inches above the ground and has a brass magnetic station marker set in the top. The following true bearings were determined:

	° ′
Top of courthouse cupola (mark)	70 04.7 west of north
East gable of a house on the west side of the railway track	88 12.2 west of north
Top of an open cupola	79 31.2 west of south

Macclenny, Baker County.—The station is in the southeastern part of the ground surrounding the old Episcopal (now deserted) Academy, about one-half mile a little east of south from the town's center. It is 172.3 feet southeast from the southeastern corner of the largest academy building and 110.2 feet west from the fence across the road. The station is marked by a limestone post 6 by 6 by 32 inches, with a magnetic station marker set in the top, which is about 3 inches above the ground. The following true bearings were determined:

	° ′
Top of Christ Church steeple (mark)	18 10.8 west of north
West gable of Joseph Thompson's house	10 54.3 west of north
North gable of Walter Turner's house	87 14.2 west of south

Monticello, Jefferson County.—The station is in the northwestern corner of the public school lot, about one-fourth mile west from the town's center. It is 267 feet a little north of west from the northwest corner of the school building, 126 feet east from the fence across the road, 56 feet from the center of the trunk of the nearest large tree to the northwest, and 58.5 feet from the center of the trunk of the nearest large tree a little east of south. The station is marked by a limestone post 6 by 6 by 32 inches, with a brass magnetic station mark set in the top, which is about 4 inches above the ground. The following true bearings were determined:

	° ′
Lower southwest corner of Methodist Church (mark)	64 54.0 east of south
North gable of public schoolhouse	82 57.9 east of south
Upper north edge of town water tank	74 17.5 east of north

Pensacola, Escambia County.—The station of 1908 was reoccupied. It is in the Pensacola Navy Yard, 249 feet east of the dispensary, 220 feet south of the low cement wall on the south border of the grounds of the officers' houses, and 21.7 feet northeast of a live oak tree. It is marked by a limestone post, 5 by 8 by 30 inches, projecting 4 inches above the ground and lettered U. S. C. & G. S., 1908. The following true bearings were determined:

	° ′
Town Point light (mark)	71 04.8 east of north
South edge of base of navy yard flagpole	67 33.0 west of north
North edge of navy yard water tank, under eaves	82 57.3 west of south

Plant City, Hillsboro County.—The station is in the south corner of the city park, about three-fourths mile northeast from the town's center, and near the west bank of a stream. It is 46 feet northwest from the northwest bank of the stream, 60.6 feet west from the north corner of a small footbridge over the stream, 40.3 feet west from a cross blazed about 2½ feet above the ground in the trunk of a live oak tree, and 56.8 feet north from a cross blazed 2½ feet above the ground in the trunk of a pine tree. The station is marked by a limestone post 6 by 6 by 32 inches, projecting about 4 inches above the ground, and having a brass magnetic station marker set in the top. The following true bearings were determined:

	° ′
Spire of the only church in sight (mark)	54 35.9 west of south
Top of town water tank	69 16.2 west of south
Northwest gable of Seaboard Air Line freight depot	48 24.6 west of south

FLORIDA—continued.

Quincy, Gadsden County.—The station is on land belonging to the Floridin Co., about 1 mile north from the town's center. It is about 700 feet northeast from the Floridin mill, on the northeast edge of a small park kept by the company. It is marked by a limestone post 6 by 6 by 32 inches, with a magnetic station marker set in the top, which is about 3 inches above the ground. The following true bearings were determined:

	° ′
West gable of Fred Hohnadel's house (mark)	55 35.3 east of north
North gable of supply house of Floridin Co	59 23.3 west of south
Upper north end of water tank	51 47.4 west of south

A pitch-pine stake was set about 420 feet due south to mark the south end of the meridian line. This stake is to be replaced by a cement post.

Sanford, Seminole County.—The station is in the northwestern corner of the Ninth Street Park, about one-half mile southwest from the town's center, and between Eighth and Ninth Streets and Oak and Park Avenues. It is 84.1 feet east from the east edge of the west boundary sidewalk, 47.2 feet slightly north of west from the center of the most northern electric-light pole in the park, and 23.9 feet northeast from the center of the trunk of the nearest palm tree. The station is marked by a limestone post 6 by 6 by 32 inches, projecting about 5 inches above the ground, and having a brass magnetic station mark in the top. The following true bearings were determined:

	° ′
Top of First Methodist Church steeple (mark)	14 00.6 east of north
Base of flagstaff on cupola of grammar school	61 32.9 west of north
North gable of No. 107 Ninth Street	16 55.0 east of south

Tallahassee, Leon County.—The station of 1908 was reoccupied. It is in the northern part of the grounds of the Florida State College for Women, 185 feet northwest of the northeast corner of the main college building and 216 feet southwest from the southwest corner of the white college building. It is about 350 feet west of North Corpland Street and about 50 feet from the stakes marking the street to the north. It is marked by a limestone post 5 by 8 by 30 inches, projecting about 5 inches above the ground and lettered U. S. C. & G. S., 1900. The following true bearings were determined:

	° ′
Spire of Trinity Methodist Episcopal Church (mark)	83 31.4 east of north
Presbyterian Church spire	83 49.1 east of north
Lower northeast corner of northwest dormitory	75 10.6 west of north
Lower northwest corner of west wing of main building	17 17.5 west of south

Declination observations were also made at a test station, about 200 feet east of the primary station.

Vernon, Washington County.—The station is on land belonging to W. H. Fuller, about one-fourth mile west from the town's center, and about 700 feet southwest from the cotton gin. It is a little south of west from the end of the first east-west road south of the cotton gin. It is 158 feet southwest from the northwest fence corner of the field on the south side of the above road, and 68 feet northwest from the fence on the northwest boundary of the field. It is marked by a limestone post 6 by 6 by 32 inches, projecting about 4 inches above the ground and lettered U. S. C. & G. S., 1914. The following true bearing was determined:

	° ′
Top of town water tank (mark)	89 48.0 east of south

GEORGIA.

Alamo, Wheeler County.—The station is in the northwestern part of the estate of Judge William Kent, about 350 feet west from his house and about one-half mile west from the village center. It is 163 feet from the fence to the northeast, 107.4 feet southwest from the southwest corner of the summerhouse, 220 feet northeast from the east corner of the spring house at Kent Spring, and 9.9 feet west from the nearest point of a pine stump about 2½ feet in diameter and about 3 feet high. The station is marked by a brass circular disk cemented in the top of a brownstone post, 6 by 6 by 30 inches, and projecting 3 inches above the ground. The following true bearings were determined:

	° ′
Upper northwest corner of Dr. Hull's house, under eaves (mark)	38 51.4 east of south
Center of pole at top of summerhouse at Kent's Spring	80 19.1 west of south

A piece of rough Georgia marble about 5 by 12 by 20 inches with a cross cut in the top was set about 250 feet distant as the north point of a meridian line.

GEORGIA—continued.

Clyde, Bryan County.—The station is in the southwest corner of a pasture about 260 feet north from the residence of J. W. Stewart, and about 1,200 feet west from the county courthouse. It is 140.1 feet southwest from the southwest corner of a field fenced with wire belonging to Mrs. Caroline Wise, 89.7 feet northeast from the center of the trunk of a small lone water oak tree, and 90.5 feet from the center line of a worm fence to the southeast. The station is marked by the neck of a white glass bottle buried about 7 inches below the ground, and supported by two other glass bottles extending east and west horizontally with their necks together. The following true bearings were determined:

	° ′	
Upper southwest corner of courthouse, under eaves (mark)	86 38.6	east of north
North gable of Mrs. Caroline Wise's house	82 51.9	east of south
North gable of P. Y. Wise's house	43 26.2	east of south
Top of cupola of the church	88 55.2	east of south

Cochran, Bleckley County.—The station is in the southern part of the ground surrounding the deserted College of the New Ebenezer, owned by the Peacock family, and is about 1½ miles southeast from the town's center. It is 281.2 feet southwest from the south corner of the southeast wing of the college, and 265.7 feet southeast from the west corner of the southwest wing. The station is marked by a brass circular disk cemented in the top of a brownstone post, 6 by 6 by 32 inches, and projecting about 6 inches above ground. The following true bearings were determined:

	° ′	
Top of Baptist Church cupola (mark)	44 15.7	west of north
Top of town water tank	51 45.4	west of north
Top of Methodist Church steeple	37 11.1	west of north
Bell at top of College of New Ebenezer cupola	22 51.3	east of north

Conyers, Rockdale County.—The station is in the northeastern part of the pasture immediately southwest of the yard surrounding the house owned by Mrs. Sarah O. Kelly, and about one-half mile south from the town's center. It is 56.1 feet southwest from the southwest fence of this yard, 92.9 feet northwest from the southeast pasture fence, and 98 feet southeast from the northwest pasture fence. The station is marked by a brownstone post 6 by 6 by 32 inches, with a brass magnetic station marker set in the top, which is about 10 inches above the ground. The following true bearings were determined:

	° ′	
Top of town water tank (mark)	24 31.5	west of north
North gable of a farm house	89 08.7	west of south
West gable of Mrs. A. J. Smith's house	76 31.2	east of south

A point was established 594 feet due south to mark the south end of a meridian line. This point is about 20 feet northwest of a small wild cherry tree and about 5 feet west of the line from it to the magnetic station. It is indicated by a hole three-fourths inch in diameter and 1 inch deep drilled in a bed of granite, with the letters S. M. cut to the northwest.

Dallas, Paulding County.—The station is in the southwestern part of the ground surrounding the grade school, about one-half mile northwest from the town's center. It is about 55 feet east from the boundary line to the west and about 138 feet north from the boundary fence to the south. The station is marked by a brownstone post, 6 by 6 by 30 inches, projecting about 5 inches above the ground, and having a bronze magnetic station mark in its top. The following true bearings were determined:

	° ′	
Top of courthouse clock cupola (mark)	49 42.1	east of south
Top of cupola on southwest corner of courthouse	48 45.8	east of south
Northeast gable of a dwelling	16 11.4	east of south

Darien, McIntosh County.—The station is in the northeastern part of ground formerly used for golf links, about one-half mile a little south of east from the town's center. It is 140.6 feet northwest from the northwest corner of the piazza of the old golf clubhouse, 153 feet northwest from the southwest corner of the same, and 31.5 feet a little west of north from the center of the trunk of a lone pine tree. The station is marked by a marble post, 4 by 6 by 32 inches, with a magnetic station marking plate set in the top, which is about 6 inches above the ground. The following true bearings were determined:

	° ′	
Top of town water tank (mark)	69 50.2	west of north
Top of Methodist Church steeple	78 04.6	west of north
Top of Baptist Church belfry	60 15.0	west of north
Top of a church steeple	56 26.7	west of north

A rough granite field stone, about 5 by 12 by 26 inches, with a cross in the top to indicate the exact spot, was set about 220 feet distant and about 2 inches above the ground, to mark the south end of a meridian line.

GEORGIA—continued.

Eatonton, Putnam County.—The station is in the southeastern corner of an inclosure belonging to the county fairgrounds, about three-fourths mile northwest from the center of town. A small branch or stream runs east and west through this inclosure. The station is 69.8 feet north from the boundary fence on the south, 79.7 feet west from the boundary fence on the east, and 89.8 feet southwest from a vertical row of galvanized nails driven in the trunk of a pine tree, about 1½ feet above the ground. The station is marked by a brownstone post, 6 by 6 by 32 inches, projecting about 9 inches above the ground, and having a brass magnetic station mark in the top. The following true bearings were determined:

	° ′	
Upper north edge of water standpipe (mark)	85 49.9	west of north
Cross of galvanized nails about 5 feet above the ground in a tree trunk	16 59.7	west of north
Vertical line of galvanized nails about 1½ feet from the ground in the trunk of a pine tree	64 02.8	east of north

Hinesville, Liberty County.—The station is in the southeast corner of an unfenced piece of ground northwest of the Methodist parsonage and southwest of the Hinesville & Fleming Railway tracks. It is 146.2 feet northwest from the southwest corner of the fence surrounding the parsonage ground, 205.5 feet southwest from the northwest corner of the same fence, and 89 feet from the fence across the road to the southwest. The station is marked by a marble post, 4 by 8 by 33 inches, with a brass magnetic station marker set in the top, which projects about 3 inches above the ground. The following true bearings were determined:

	° ′	
Lower northwest corner of wholesale building of J. B. Ways (mark)	67 47.4	east of north
Northwest gable of Hinesville & Fleming Railway station	56 27.7	east of north
Lower northwest corner of Methodist parsonage	79 39.0	east of south

Jeffersonville, Twiggs County.—The station is in the northeastern part of a field belonging to A. F. Martin, county clerk, on the west side of the road running approximately north and south past A. F. Martin's house, and between this house and the courthouse, about three-fourths mile northwest from the town's center. It is in a cleared space between two draws to the north and south, 126.8 feet west from the northwest corner of an inclosed field, 68.2 feet a little west of south from a triangle of galvanized nails about 1½ feet above the ground in a tree trunk, and 145.6 feet northwest from a cross of galvanized nails about 5 feet above the ground in a tree trunk. The station is marked by a brownstone post, 6 by 6 by 36 inches, projecting about 9 inches above the ground, and having a brass magnetic station mark in the top. The following true bearings were determined:

	° ′	
North gable of E. L. Self's ginhouse (mark)	36 15.5	west of south
Cross of galvanized nails about 5 feet above ground in the trunk of a pine tree	20 56.0	east of south
Cross of galvanized nails about 2 feet above ground in the trunk of a tree	47 02.0	west of north

Macon, Bibb County.—The station of 1905 was reoccupied. It is on the east side of the mile race track in Central City Park. It is 6 feet southwest from the southeast corner of a shed, 6 inches southeast from the line of the southeast edge of the shed, 26.2 feet east of the track, 117.1 feet south of the grand stand, 196.8 feet south (measured along the track) of the starting point of the mile, and 213.2 feet west of a blazed tree. The station is marked by a marble post, 9 by 9 by 24 inches, buried 7 inches below the ground, and lettered U. S. C. & G. S., 1905. The following true bearings were determined in 1905:

	° ′	
Smith Art Hall, flagpole at south entrance (mark)	71 01.2	west of north
Center dome of Massee Hall	59 21.3	west of north
Pole on main stable at race track	83 45.6	west of north
Left edge of top of tall smokestack	65 11.4	west of south

St. Marys, Camden County.—The station is in the south end of the road on the east side of the cemetery, about one-fourth mile southwest from the town's center. It is 114.8 feet southwest from the southeast corner of the cemetery wall and 212.4 feet north from the north rail of the track of the St. Marys & Kingsland Railroad. It is marked by a marble post 4 by 8 by 33 inches, with a magnetic station marking plate set in the top, which is about 6 inches above the ground. The following true bearings were determined:

	° ′	
Top of the northeast iron gate of the cemetery (mark)	4 29.1	east of north
Upper northeast corner of the cemetery wall	4 53.0	east of north
Base of smokestack of old sawmill across the St. Marys River	18 38.7	west of south

GEORGIA—continued.

Savannah, Chatham County.—Observations were made about 6 feet northeast of the old station. As the old station was found unsuited for future observations, a new station was established in the southwest corner of the pecan grove on the farm of William H. Robertson, head commissioner of parks and trees, and about 4 miles southwest from the town's center. It is between the third and fourth pecan trees from the west in the third row from the south, 19.9 feet east from the center of the trunk of this third tree and 20.4 feet from the center of the trunk of this fourth tree. It is also 91 feet from the property line to the south and 120 feet from the property line to the west and about 300 feet south from the farmhouse. The station is marked by a marble post 5 by 6 by 36 inches, projecting about 7 inches above the ground, and having a brass magnetic station marker set in the top. The following true bearings were determined:

	°	′	
West knob at top of roof of Mr. Robertson's farmhouse (mark)	19	49.7	east of north
East knob at top of roof of Mr. Robertson's farmhouse	22	06.8	east of north
Central point in a line of copper nails about 230 feet distant and about 5 feet feet above ground, in pine tree trunk	68	56.7	west of south
Cross of copper nails about 5 feet above ground in a pine tree trunk about 180 feet distant	22	09.6	east of south

Springfield, Effingham County.—The station is in the city park, between the grade school and the courthouse, and about 396 feet southeast from the courthouse. It is about 52 feet northwest from the northwest fence line of the street along the northwest side of the Baptist Church, 161.5 feet southwest from the fence across the road to the northeast, and 81 feet a little west of south from the center of the trunk of a cherry tree about 2 feet in diameter. The station is marked by a brownstone post 6 by 6 by 30 inches, projecting about 4 inches above the ground, and having a brass magnetic station marker set in the top. The following true bearings were determined:

	°	′	
Lower northwest corner of northeast wing of the grade school (mark)	42	42.4	east of south
Upper northeast corner of Baptist Church, under eaves	11	28.2	west of south
Lower northeast corner of courthouse	33	49.9	west of north

Wrightsville, Johnson County.—The station is in the southern part of the ground surrounding Warthen College, about three-fourths mile southwest from the town's center. It is 278 feet southwest from the southern corner of the college building and 188 feet northwest from the northwest track of the Wrightsville & Tennille Railway. The station is marked by a brownstone post 6 by 6 by 32 inches, projecting about 7 inches above the ground, and having a brass magnetic station mark in the top. The following true bearings were determined:

	°	′	
Top of Methodist Church steeple (mark)	52	36.1	east of north
Top of courthouse cupola	24	55.4	east of north
Top of town water tank	34	47.6	east of north
Spire on college cupola	16	59.0	east of north

IDAHO.

Rathdrum, Kootenai County.—The station is about 3 miles northeast of town on the grounds of the Brophy district school. It is 29.4 feet from the southwest fence, 42.7 feet from the southeast fence, and 62.8 feet from the south corner of the school building. The station is marked by a bronze station mark in the top of a cement post 2 feet long and 1 foot in diameter, sunk flush with the surface of the ground. The following true bearings were determined:

	°	′	
White post on railroad track (mark)	25	31.1	east of south
Second white post on railroad track	85	20.5	east of north
Gable of barn	68	32.1	east of north
Southeast corner of schoolhouse	21	14.5	east of north

Sand Point, Bonner County.—The station is about 1½ miles southeast of the city hall, in the grounds of the cemetery. It is about 55 feet west of the center of the road running through the length of the cemetery, and in the center of the path which leads off from the road north of the Thomason lot. It is marked by a bronze station mark set in the top of a cement block, 8 by 8 by 24 inches, sunk level with the surface. The following true bearings were determined:

	°	′	
Spire of Humbird School	2	56.4	west of north
Spire of Central School (mark)	41	53.1	east of north
Spire on city hall	43	10.2	east of north
Flag pole on Southmayd School	45	23.2	east of north

ILLINOIS.

Bloomington, McLean County.—The station of 1908 was reoccupied. It is on the experimental farm connected with the State Normal School, in the middle of one of the cultivated fields. It is west-southwest from the farm buildings and directly north from house No. 709 on Sudduth Road, which passes on the south side of the field, and about 800 feet from the south fence. The station is marked by a Bedford stone post 8 by 8 by 54 inches, projecting 18 inches above the ground and lettered U. S. C. & G. S., 1908. The following true bearings were determined in 1908:

	°	′	
Cross on St. Mary's Catholic Church steeple (mark)	13	13.2	west of south
Staff on tower of main building at the Normal University	68	42.5	east of south
Staff on cupola of Gregory residence	29	15.3	east of north
Northwest corner of house No. 709 Sudduth Road (approximately)	0	19.4	west of south

Caledonia, Boone County.—The station is about one-fourth mile northeast of the railroad station, in a field owned by a farmer named Thompson. The station is about 500 feet southeast of the Standard School and about 250 feet south of the road. It is directly in line with the fence along the south end of the small field about Thompson's house and 106 feet from the corner of that fence. The station is unmarked.

Harvard, McHenry County.—The station is about three-fourths of a mile west of the business part of the town, on the property of John Deener, in a pasture directly back of his barns. It is 96 feet from the west fence and 174.5 feet from the south fence, which separates the pasture from the barnyard. The station is unmarked.

Joliet, Will County.—The station of 1905 was reoccupied. It is in a pasture 6 miles southwest from the town, lying between the Chicago, Rock Island & Pacific Railway and the old Michigan Canal. It is nearly due east and about 40 rods distant from the northeast corner of the fence around Rock Run Park. It is 100 paces from the Chicago, Rock Island & Pacific Railway fence and 82 paces from the edge of the canal. The Chicago, Rock Island & Pacific Railway semaphore post No. 460 is 230 paces northeast from the station, or 210 paces east along the track from the foot of a perpendicular line drawn from the station to the track. The station is marked by a marble post 4 by 8 by 27 inches, projecting 4 inches above the ground and lettered U. S. C. & G. S., 1905. The following true bearings were determined in 1914:

	°	′	
Chicago, Rock Island & Pacific Railway semaphore post No. 460	34	18.9	east of north
Smokestack on box factory (mark)	62	42.4	east of north
Smokestack on Joliet Enterprise Wire Mills	65	47.2	east of north

IOWA.

Correctionville, Woodbury County.—The station is near the center of the old part of the cemetery, about one-half mile east of the town's center. It is in the center of a main north and south street, about in line with the north side of the cemetery house and 97 feet east of its northeast corner, 287 feet south of the north fence, 239 feet east of the west fence, and 31.5 feet southwest of the Plato monument. The station is marked by a Bedford limestone post 6 by 6 by 18 inches, with a brass plate in the top set flush with the ground. The following true bearings were determined:

	°	′	
Left edge, dark part of Madison monument in new addition (mark)	10	04.4	east of south
Right hand chimney of farmhouse 4 miles away	44	47.2	west of south
Northeast corner of upper part of G. A. R. monument	25	15.4	west of north
Left edge of base stone of Clark monument	50	13.2	east of north

Dubuque, Dubuque County.—The station of 1907 was reoccupied. It is in the grounds of Mr. J. V. Rider, on Seminary Hill, in the southwest corner of the yard near the limestone bluff. It is 20.4 feet east of the west yard fence, 35 feet north of the edge of the cliff, 37.5 feet southwest of the nearest corner of the cement steps in yard, and 9.8 feet southwest of a spruce tree. The station is marked by a marble post lettered U. S., and sunk flush with the surface of the ground. The following true bearings were determined in 1914:

	°	′	
Cross on Catholic Church spire on hill (mark)	39	05.7	west of south
Center of high brick smokestack on hill	44	09.5	west of south
South gable of brick house north of Seminary Street	43	26.5	west of north
Southeast corner of Mr. Rider's house (on bricks)	6	06.8	east of north
Cross on Catholic brick church in the city	68	44.3	east of south

Dunlap, Harrison County.—The station is in the city park near the center of town. It is 142 feet northeast of the northeast corner of the band stand, 141 feet east of the edge of the street to the east, 135 feet south of the edge of the street to the north, 71 feet northeast of the cement walk through the park, 19 feet southeast of a tree. The station is not marked.

Two other stations were occupied, one about 1 mile east and the other about 6¼ miles south and 2 miles east of the primary station.

IOWA—continued.

Exira, Audubon County. The station is in a pasture belonging to Mr. Henry Stevenson, about one-fourth mile southwest of town's center. It is 102 feet north of the south pasture fence and 85 feet east of the west pasture fence. The east side of the tennis court produced 56 feet southward passes 12 feet west of the station. The station is not marked.

Observations were also made at two auxiliary stations. Station A is 289 feet northeast of the primary station and is not marked. It is near the east edge of the pasture. Station B is 271 feet southeast of the primary station and in another pasture. It is not marked.

Griswold, Cass County.—The primary station is near the northwest corner of the city park about one-fourth mile north of the town's center. It is 140 feet from the northwest corner of the band stand, 41 feet northwest of an elder tree, 32 feet northeast of an elm, 14.5 feet south of an elder tree, and 79 feet from the cement walk on the west side of the street west of the park. The station is not marked. The following true bearings were determined:

	° ′
Left edge of chimney on farmhouse (mark)	29 38.1 west of north
West gable of a barn north of the park	33 00.9 east of north
Right edge of a house south of park	2 54.4 east of south

Three auxiliary stations were also occupied. Station A is in a meadow belonging to Mrs. Tye, about three-fourths mile north of the town's center; station B is in the southeast corner of a field on the Bratton farm, about 1 mile east of the center of town; station C is in the southwest corner of a field belonging to Sam Baughman, about 1 mile south and one-half mile west of the center of town.

Lake Mills, Winnebago County. The station is on the south edge of the city park, one-half mile south of the town's center. It is 32.8 feet north of the south fence; 294 feet (measured parallel to fence) east of the walk on the west side of the street west of the park; 247 feet east of the fence corner at the southwest corner of the park, about in line with two large maple trees, one to the southwest and one to the northeast, and 10 feet from the center of each. The station is marked by a Bedford limestone post 6 by 6 by 30 inches with a brass plate in the top, which projects about 5 inches above the ground. The following true bearings were determined:

	° ′
East gable of house across street (mark)	89 09.0 west of north
Southeast corner of a barn across street	61 17.4 west of north
Right edge of a chimney on the south end of a house	52 47.1 east of north
East gable of a house south of the track	37 35.8 west of south

A similar stone 224.3 feet to the north marks the true meridian. It is in line with the north row of trees in the park and 3 feet west of one of them.

Observations were made also at three auxiliary stations. Station A was in a country school yard 2¼ miles south and 2½ miles east of the primary station; station B was on the school grounds at the old town site of Bristol, 4 miles east and one-half mile south of the primary; station C was on the school grounds at the old town site of Delano, one-half mile east and 5 miles south of the primary.

Mallard, Palo Alto County.—The station is on the high-school grounds near the center of town. It is about in line with the west side of the high-school building produced south, this line passing 4 feet east of the station; 62 feet south of the southwest corner of the building; 80 feet southwest of the southeast corner; 15 feet southwest of an elder tree, and 104 feet northwest of the northwest corner of a church. The station is not marked.

Mondamin, Harrison County.—The station is in a pasture belonging to Mr. Remington. It is near the baseball grounds, one-fourth mile southwest of the town's center. It is on line with a row of four large cottonwood trees, 43 feet north of the north tree, 161 feet from the west pasture fence; a line from home base to first base passes 13 feet southeast of the station. The station is not marked.

Observations were made at seven auxiliary stations to ascertain the distribution of the local disturbance found to exist in this locality, as follows: Stations A and A′, 1¼ miles west of primary station; B, 1 mile south of primary station; C, 2½ miles west and one-half mile south of primary station; D, 1¼ miles north of primary station; E, one-half mile west of primary station; F, 2 miles east of primary station; X, one-third mile north, and Y three-fourths mile north of primary station.

Moorhead, Monona County.—The station is in the southeast corner of the city park, about one-fourth mile northeast of the town's center. It is in line with the third row of trees from the south side of the park and midway between the first and second rows from the east side. It is 36.5 feet from the east fence, 43.9 feet from the south fence, 55.4 feet from the southeast corner, and 15.9 feet from the first tree to the west. The station is marked by a Bedford limestone post 6 by 6 by 18 inches, projecting 1 inch above the ground, with a brass plate in the top. The following true bearings were determined:

	° ′
North gable of Mr. Holliwell's farmhouse (mark)	13 34.8 east of south
Apex of church spire (Methodist Episcopal)	45 25.9 west of south
South gable of large dwelling in northeast part of town	14 12.2 east of north
Cupola of large barn across the valley	81 30.8 east of south
West gable of barn on distant hilltop	69 00.8 east of south

IOWA—continued.

Observations were also made at nine auxiliary stations in order to develop the distribution of the local disturbance found to exist in this locality, as follows: Stations A, 1½ miles east and one-fourth mile south of primary station; B, one-half mile west; C, 1 mile west; D, one-fourth mile east and one-half mile north; E, one-half mile east and one-fourth mile south; F, one-eighth mile east and 2 miles south; G, 2 miles east and one-fourth mile south; H, 1¾ miles east and 2 miles south, and I, 3½ miles east and 2 miles north.

Oelwein, Fayette County.—The station is on the old fairgrounds, within the race course on the east side. It is one-half mile northeast of the town's center, 78 feet northwest of a fence corner, 125 feet west of a fence, 231 feet northeast of the northeast corner of the old exhibition hall, 91 feet south of the south side of a street produced eastward. The station is not marked.

Observations were also made at two auxiliary stations. Station A is 3 miles due west of primary station, in a pasture near township line; station B is 3 miles east and one-half mile south of primary station, in pasture near township line.

Plainfield, Bremer County.—The station is near the southwest corner of the cemetery, one-fourth mile southwest of the town's center. It is 29.8 feet east of the west fence, 72.5 feet north of the south fence, 11.8 feet west of a spruce tree, 28.1 feet south of the southwest corner of the Newcomb monument, 50.5 feet southwest of the southwest corner of the Hunter monument. The station is not marked.

Pocahontas, Pocahontas County.—The station is near the northeast corner of the courthouse yard just north of the town's center. It is 254 feet north of the cement walk along the south edge of the courthouse yard, 233 feet northwest of the northwest corner of the Montgomery residence, 228 feet northeast of the northeast corner of the courthouse, 233 feet northeast of the northeast corner of the overflow vault, and 228 feet southeast of a large cottonwood tree on the north line of the courthouse yard. The station is marked by a Bedford limestone post 6 by 6 by 18 inches, with a brass plate in the top set flush with the ground. The following true bearings were determined:

	° ′
Lutheran Church spire (mark)	86 03.3 east of south
Chimney on house, one-half mile northeast of town	64 00.6 east of north
East gable of barn, one-fourth mile north of town	3 57.9 east of north
Northwest corner of courthouse	60 17.7 west of south
North gable of house just south of the park	1 09.1 east of south

Rolfe, Pocahontas County.—The station is in the northeast corner of the high-school grounds near the center of town. It is 124 feet north of the northeast corner of the main building and 8 feet east of the line of the east side of the main building. It is 61 feet from the tree at the extreme northeast corner of the grounds, and 22 feet south of a row of trees. The station is marked by a Bedford limestone post 6 by 6 by 18 inches, set flush with the ground. The following true bearings were determined:

	° ′
Northwest corner of high-school annex (mark)	48 07.1 west of south
Northwest corner of main building	33 25.2 west of south
Northeast corner of residence north of high school	11 16.8 west of north
Northeast corner of main building	3 37.4 west of south

Sibley, Osceola County.—The station of 1909 was reoccupied. It is about three blocks east of the northeast corner of the county courthouse square, in the city park, 114.7 feet north from the new cement walk along the south edge of the park. It is 62.7 feet east from the row of maple trees at the east side of the drive that enters the park at the south side, or about 80 feet east from the center of the street which passes on the east side of the high-school block. The station is marked by a cement post 6 by 6 by 24 inches, set 1 inch below the surface, and very dimly lettered U. S. C. & G. S., 1909, on the top, with a countersunk mark at the center. The following true bearings were determined:

	° ′
Northwest corner of brick wall of high school, just below cornice (mark)	28 22.2 west of south
Left edge of vestibule of church southwest of park	72 57.5 west of south
Right edge of house south of park	44 28.9 west of south
Northwest corner of porch of house	53 19.8 east of south
Right edge of large chimney on high school	26 44.2 west of south

Sioux Rapids, Buena Vista County.—The station is on the east edge of the high-school grounds, about one-fourth mile southeast of the center of town. It is 99.5 feet southeast of the southeast corner of the high-school building, 64 feet south of the south side of the building produced eastward, 57.5 feet southwest of an elm tree, 36 feet west of the edge of the street, 40 feet east and a little north of the south pole of the basket-ball ground, and 104 feet northeast of home base of the baseball diamond. The station is marked by a Bedford limestone post 6 by 6 by 18 inches, projecting 1 inch above the ground, and having a brass plate in the top. The following true bearings were determined:

	° ′
Apex of Chicago & North Western Railway water tank (mark)	0 21.2 east of north
Left edge of house in southeast part of town	27 55.0 east of north
West gable of house on hill	83 42.2 east of north
Metal cupola on large barn on western horizon	88 26.2 west of north
Church spire in village	20 59.5 west of north

IOWA—continued.

Smithland, Woodbury County.—The station is in the city park, about one-half mile east and a little south of the town's center. It is near the northeast corner of the park, north of the baseball ground, 280 feet west of the east fence, 192 feet east of a fence to the west, 235 feet northeast of the northeast corner of the grand stand, 33 feet southeast of an elm tree, 52 feet from a steep bank, and about in line with the northeast corner of the grand stand and the first row of trees to the north of the baseball ground. It is marked by a Bedford limestone post 6 by 6 by 18 inches, with a brass plate in the top, and projecting 1 inch above the ground. The following true bearings were determined:

	°	′	
West gable of farmhouse, one-half mile to the east (mark)	81	54.9	east of south
Cupola on barn near above farmhouse	82	07.6	east of south
Left edge of steel upright near center of large river bridge	64	00.1	west of south

Strawberry Point, Clayton County.—The station is near the northeast corner of the cemetery, one-half mile east of town. It is 49 feet south of the north fence, 46 feet west of the row of trees between the Protestant and Catholic cemeteries, 57 feet southwest of the last tree on the north side of the Catholic cemetery, 65.5 feet northwest of the northwest corner of the Balluff monument, and 158 feet northeast of the northeast corner of the Jensen monument. The station is not marked.

Observations were made at three auxiliary stations. Station A is 3 miles due east of primary station, on county road, not marked; station B is 2 miles west, 2 miles north, or 2.8 miles northwest of primary station, in county road, not marked; station C, 2 miles west, 3 miles south, or 3.6 miles southwest of primary station, not marked.

Walker, Linn County.—The station is near the center of the cemetery, one-half mile southwest of town's center. It is west of the main drive, 85 feet southeast of the southeast corner of the office building, 15.5 feet south of a cedar tree, 46 feet southwest of the Hight monument, 50.5 feet west of the Hopkins monument, 77.5 feet northeast of the Wachal monument, and 101 feet north of the south fence. The station is not marked.

Waucoma, Fayette County.—The station is near the northeast corner of the Waucoma Cemetery, about one-half mile northeast of town's center. It is 59.5 feet south of the north fence, 66.1 feet northwest of the northwest corner of the Goodnow monument, 33 feet east and a little south of the Harris monument, 54.2 feet west of the east fence. The station is not marked.

Waukon, Allamakee County.—The station is near the center of the cemetery, about one-half mile south of the town's center. It is 417.8 feet east of the west fence, 345 feet south of the north fence, 40.5 feet southeast of the Arnold monument, 63 feet south and a little west of the Dean monument, 87.7 feet northwest of the Teeple monument, 79.3 feet northwest of the O'Brien monument, 92 feet north and a little east of the Farnham monument, and 83.8 feet east of the Douglas monument, all measurements made to the nearest corner of the lowest base stone. The station is marked by a 3-inch tile, which sets just below the surface. The following true bearings were determined:

	°	′	
Cupola on barn 1 mile away (mark)	19	15.5	east of south
Left edge of lowest base stone of the Deremore obelisk	31	20.3	west of south
Nearest corner of main part of L. H. Howe's monument	46	44.7	west of north
Right edge of main part of the large Barthell monument	48	40.1	east of north

LOUISIANA.

Alexandria, Rapides Parish.—The station of 1904 was reoccupied. It is in the national cemetery at Pineville, on the east side of Red River. It is marked by a marble post 6 inches square, projecting 3 inches above the ground. This post is 135 feet from the brick fence on the southeast side of the cemetery and 223.8 feet from the brick fence on the northeast side. The following true bearings were determined:

	°	′	
Top of well house at superintendent's lodge (mark)	46	28.6	west of south
Base of flagpole in cemetery	74	28.0	west of north
Top of old cannon set vertically	61	58.4	west of south

De Ridder, Beauregard Parish.—The station is on the baseball grounds, about one-fourth mile southeast of the center of the town. It is in right field, 36.6 feet from a lone pine cutting the east fence, 38.2 feet from the post at the southeast corner of the fence, about 125 feet from first base and about 140 feet from second base. The exact spot is marked by a concrete post 8 by 8 by 30 inches, with a brass marker in the top, set flush with the surface of the ground. The following true bearings were determined:

	°	′	
West edge of "foul" sign on fence on north side of field (mark)	4	10.6	west of north
East side of railroad water tank	70	00.1	west of south
East edge of post on east corner of grand stand	72	49.0	west of north
South gable of building 200 yards distant	11	57.9	west of north

LOUISIANA—continued.

La Fayette, Lafayette Parish.—The station of 1908 was reoccupied as nearly as possible, the monument having been removed. It is in the meridian line located on the grounds of the Industrial School, and is 722 feet south of the north monument of this line. It is 390.1 feet from the south corner of the main building, 282.5 feet from the south corner of the kitchen of the boys' dormitory, 160.9 feet west from the southwest corner of the arts and crafts building and 43 feet from the inner edge of the athletic track. The station is marked by a 1-gallon stoneware jug, the top of which is 4 inches below the surface of the ground, the center of the mouth of the jug being the exact spot.

Oberlin, Allen Parish.—The station is in the northwest corner of the schoolhouse grounds, about one-fourth mile west of the center of the town and adjoining the courthouse. It is 36 feet from the fence on the west, 61.3 feet from the fence on the north, and about 265 feet from the northwest corner of the school building. The exact spot is marked by a cement post 8 by 8 by 34 inches, with a brass marker set in the top, projecting about 4 inches above the surface of the ground. The following true bearings were determined:

	° ′
South gable of residence one-third mile distant (mark)	0 19. 5 east of north
Southeast corner of county jail	12 18. 5 east of north
Lower southeast corner of courthouse	53 17. 9 east of north
West gable of Iles Hotel	89 08. 7 east of north
Lower southwest edge of schoolhouse	40 36. 1 east of south

Port Allen, West Baton Rouge Parish.—The station located on the top of the river levee. It is about 200 yards north of the ferry landing and railroad depot, about 215 feet north of the "cable" pole, and about 8 feet west of the footpath running on top of the levee. It is nearly opposite the second telegraph pole counting north from the road running west toward the town. The exact spot is marked by a limestone post 6 by 6 by 27 inches, with a brass marker in the top, projecting about 4 inches above the ground. The following true bearings were determined:

	° ′
Water tank 1 mile across river (mark)	28 03. 0 east of south
Weather vane on Port Allen courthouse	38 15. 2 west of north
Catholic Church spire in Baton Rouge	75 17. 6 east of south
Apex of tower on Baton Rouge post office	65 18. 0 east of south
Flagpole on Louisiana statehouse	51 12. 8 east of south

Shreveport, Caddo Parish.—The station of 1904 was reoccupied. It is in the northeastern part of the space inside the Caddo Downs race track, which is about 3 miles southwest of the courthouse. The inner fence about the race track is distant from the station 38.1 feet, measuring due north, and 34.4 feet measuring in the direction of the Mulkaupt House. There is a small pear orchard about 15 rods north and west of the station and across the race track. The station is marked by a Bedford limestone post 5 inches square, projecting 5 inches above the general surface, and having a hole filled with lead to mark the center. Two other similar stones mark the meridian, the south stone being 600 feet south of the magnetic station and 6 feet inside the inner fence of the race track, while the north stone is 940 feet north of the magnetic station and is 6 feet inside the high board fence surrounding the race-track grounds. The spire of the Jewella Christian Church bears 76° 59.4′ west of true south.

Ville Platte, Evangeline Parish.—The station is in the public cemetery, which in about one-fourth mile southeast of the center of the town. It is in the eastern central section, 35 feet from the west edge of road bounding on the east, 74.6 feet from the telegraph pole east of the road, 189.5 feet northeast of a lone tree, about 140 feet from the center of the road bounding the cemetery on the north, and about 175 feet from the wire fence on the west side of the cemetery. The station is marked by a cement post 7 by 7 by 30 inches, with a brass magnetic station marker set in the top, projecting about 4 inches above the surface of the ground. The following true bearings were determined:

	° ′
East gable of house, one-half mile distant (mark)	29 32.8 west of south
North gable of residence 200 yards distant	51 46.9 west of south
Apex of railroad water tank	71 55.1 west of north
Church spire	80 46.9 east of south
South cupola on house 100 yards distant	5 54.1 east of south

MAINE.

Bangor, Penobscot County.—The station of 1905 on Thomas Hill, near the center of a vacant lot owned by Mr. Prentiss, was reoccupied. It is 76.3 feet northeast of a tree, 126.1 feet from the fence on the north side of Highland Avenue, and 133.9 feet from the fence on the west side of Gov. Davis's yard. The station is marked by a granite bowlder smoothed on the top and lettered U. S. C. & G. S. The following true bearings were determined:

	° ′
Spire of East Bangor meetinghouse	20 03.0 west of north
Flagpole on reservoir	24 28.6 east of north
North edge of house	44 40.1 west of north

MAINE—continued.

Canton, Oxford County. The station is in the north corner of the school playgrounds, about one-third mile northeast of the center of the town. It is 39.4 feet from the fence on the northeast, 37.5 feet from the base of a tree north-northwest of it, and 36.3 feet from the base of a tree west-northwest of it. The station is marked by a stone, set flush with the ground, and having a brass magnetic station mark in the top. The following true bearings were determined:

	° ′
North gable of house, one-third mile away (mark)	12 59.2 east of south
Belfry of Unitarian Church (abandoned)	13 14.0 west of south
Spire of Baptist Church	24 36.8 west of south
Weather vane on schoolhouse tower	80 44.4 west of south
South gable of house, one-third mile away	56 28.2 west of north

An iron pipe, 30 by 6 inches, filled with cement and having a brass marker in the top, was set 435 feet due south from the magnetic station to mark the south end of a meridian line. The pipe sets about 4 feet from the southeast fence of the field and 45 feet from the southwest.

Portland, Cumberland County.—The station of 1906 (on Western Promenade) was reoccupied. Observations were taken over the middle monument of the meridian line in the city park on Bramhall Hill. The mark used was the south monument of the meridian line. This station was found to be unsuitable for magnetic work, but time did not permit the establishment of a new one.

MASSACHUSETTS.

Becket, Berkshire County.—The station is about one-half mile south of the center of the town in a pasture owned by Mr. Blue, on the west side of the turnpike. It is about 200 feet south of a large barn, set back about 250 feet from the road, 157.2 feet from the east fence, 187.3 feet from the north fence, and about 60 feet from the bank of the stream on the west. The station is marked by a cement post, 8 by 8 by 30 inches, projecting about 2 inches above the ground, and having a brass marker in its top. The following true bearings were determined:

	° ′
East side of tree 500 feet away (mark)	11 13.1 west of south
East gable of barn 500 feet away	52 51.0 west of south
Southwest gable of Blue's barn	21 41.5 west of north
Northwest corner of Garner's residence, 400 feet away	44 43.1 east of north
West gable (upper part) of Cross's residence, 400 feet away	45 01.9 east of south

Pittsfield, Berkshire County.—The station of 1905 was reoccupied. It is on the grounds of the sewer pumping station, southeast of the city, and about 80 yards southwest of the south end of the storage tanks. A meridian line was established with the north stone 397.7 feet distant, near a driveway to the city gravel pit. The north stone is 62 feet west of a small tree across this roadway and 2 feet south of the fence. Both monuments are of marble 6 by 6 by 60 inches, set about 1 foot above the ground, and lettered U. S. C. & G. S. The following true bearing was determined at the south monument in 1905:

	° ′
Southeast gable of concrete house with slate roof	31 52.5 west of north

MINNESOTA.

Amboy, Blue Earth County.—The station is on the east side of the high-school grounds near the center of town. It is 59 feet south of the southeast corner of the school building; the east side of the building (produced) southward passes 6 feet east of the station. It is 7 feet south of the row of trees south of the building, 35 feet southwest of the tree at the east end of the row, and 51 feet west of the line of the east row of trees produced. It is marked by a cement post 10 by 10 by 24 inches with a drill hole in the top, which projects 2 inches above the ground. The following true bearings were determined:

	° ′
Ball at apex of steel water tower (mark)	73 06.4 east of north
West gable of south grain elevator	53 58.1 east of south
Northwest corner of a house southwest of high school	52 24.7 west of south
Southwest corner of high-school building, on brick	56 03.8 west of north
Northwest corner of a house east of the church	36 57.9 east of north

Blooming Prairie, Steele County.—The station is on the west edge of the city park, about one-fifth of a mile west of the town's center. It is 155 feet north of the north side of the walk (produced) on the north side of Main Street, 342 west of the walk on the east side of the street east of the park, 8 feet east of the west row of trees, and 15 feet west of the second row of trees from the west side. It is not marked. Declination observations were made also at two points, one 300 feet northeast of the primary and the other 300 feet to the southwest.

Three auxiliary stations were occupied. Station A was about 2½ miles west and 1½ miles north of the primary, in a small pasture east of the road; station B was 3½ miles east and one-half mile north of the primary, in a large meadow east of the main road; station C was almost 3 miles due south of the primary, in a large pasture south of the road.

MINNESOTA—continued.

Breckinridge, Wilkin County.—The station of 1909 was reoccupied. It is in the south side of the county courthouse yard, 22.6 feet from the tree row on the south and 78.5 feet from the cement walk on the west side of the yard. It is marked by a limestone post 6 by 6 by 24 inches, set flush with the ground, and lettered U. S. C. & G. S., 1909. The following true bearings were determined:

	°	′	
Northwest corner of St. Francis Hospital, above water table (mark)	61	22.4	west of south
Cross on cupola of St. Francis Hospital	48	56.5	west of south
Northwest corner of school building east of courthouse	76	05.2	east of north
Southeast corner of school building	86	42.6	east of north
Southeast corner of St. Francis Hospital	37	24.5	west of south

Buffalo Lake, Renville County.—The station is near the northeast corner of the school grounds, about one-eighth mile east of the town's center. It is exactly in line with the northwest corner of the school building and the left edge of the elevated tank; 64 feet northeast of the northeast corner of the building; 45.5 feet from the inner row of trees on the east side, and 63.5 feet from the inner row of trees on the north side. The station is not marked.

Cannon Falls, Goodhue County.—The station is near the northeast corner of the city park, about one-half mile east of the town's center. It is 277.9 feet north of the north edge of the cement walk on the south side of the street south of the park; 173.1 feet south of the south edge of the walk on the north side of the street north of the park; 41.8 feet west of the row of trees on the eastern boundary of the park; 11 feet south of a large pine tree, and 142 feet southwest of the southwest corner of Mr. Burgreen's house. The station is marked by a cement post 10 inches in diameter and 3 feet long projecting 3 inches above ground, and having a brass plate set in the top. The following true bearings were determined:

	°	′	
Cross on Catholic Church spire (mark)	80	19.3	west of south
Right edge of the lowest part of the Catholic Church dome	80	39.0	west of south
Southeast corner of Mr. Sudebla's house, just south of park	1	09.5	east of north
West gable of John Johnson's house	78	45.0	east of north
Southwest corner of foundation of Mr. Ohlson's house	39	51.4	west of north

Chaska, Carver County.—The station is near the southeast corner of the high-school grounds, about one-eighth mile east of the town's center. It is 24.3 feet west of the row of trees on the east, 75.1 feet north of the cement walk on the south, and 109 feet southeast of the southeast corner of the school building. It is marked by a cement post 7 by 7 by 36 inches with a brass magnetic station mark in top, set flush with the ground. The following true bearings were determined:

	°	′	
Left edge of cross on Lutheran Church spire (mark)	58	28.5	west of south
Spire on cupola of Lutheran school	56	25.8	west of south
Southeast corner of high school, near ground	85	04.3	west of south
Northeast corner of high school, near ground	64	31.2	west of north
Southeast corner of a house across an old clay pit	38	03.1	east of north

Chatfield, Fillmore County.—The station is in the south part of the cemetery, 1 mile southeast of the town's center. It is 41.1 feet south of the board fence on the north; 125.2 feet west of the Chapman monument, which is at the left of the main entrance; 99 feet southwest of the west gate post; 76.7 feet northwest of the Sanderson monument, and 55.3 feet northeast of the Moore monument. It is near the center of the third street west of the main drive and on the north edge of the first street south of the north fence. It is marked by a Bedford limestone post 6 by 6 by 20 inches, with a brass plate in top, which projects 1 inch above the ground. The following true bearings were determined:

	°	′	
Cupola of barn on hill (mark)	5	49.3	west of north
Left edge of McCrew monument	46	08.0	east of south
Right edge of cemetery house	11	55.2	east of south
East gable of house southwest of cemetery	32	23.5	west of south
Southeast corner of Drebert's monument	88	03.3	west of north

Claremont, Dodge County.—The station is in a small pasture belonging to Mr. Fred Van Ruden, about one-half mile southwest of the town's center. It is about two blocks south of the railroad crossing on the west side of the main road. The Catholic cemetery lies upon the hill to the south and east. The station is 356 feet west of the west fence, along the road, 52 feet east of the west pasture fence, and 54 feet south of the north pasture fence. The station is not marked. Declination observations were made also at a point 300 feet to the east of the primary station.

Three auxiliary stations were occupied. Station A was 3 miles south of the primary, in a pasture east of the road; station B was in the middle of a road, 3.4 miles north and 2 miles west of the primary; station C was 2.4 miles north and 2.5 east of the primary, in a pasture north of the road.

MINNESOTA—continued.

Elbow Lake, Grant County.—The station is near the northeast corner of the courthouse yard, about one-eighth mile north of the town's center. It is just south of the edge of the grove; 54 feet west of the fence east of the courthouse yard; 77.5 feet northeast of the northeast corner of the courthouse, and the east side of the courthouse (produced northward) passes 53.5 feet west of the station. The station is marked by a cement post 8 by 8 by 36 inches, projecting 6 inches above the ground, and having a brass magnetic station mark in the top. The following true bearings were determined:

	°	′	
Presbyterian Church spire (mark)	7	38.1	east of south
Southeast corner of courthouse	23	40.1	west of south
Northwest corner of courthouse	66	11.1	west of south
Southwest corner of a bungalow	72	48.9	west of north

Ellendale, Steele County.—The station is near the southwest corner of the school grounds on the east edge of town. It is 71 feet from the row of trees on the south, 72 feet from the corner tree, 13.2 feet from the row of trees on the west, and 122.3 feet southwest of the southwest corner of the school building. The south side of the building (produced westward) passes 40.3 feet north of the station. It is marked by a Bedford limestone post 6 by 6 by 18 inches, with a brass plate in the top, which projects about 5 inches above the ground. The following true bearings were determined:

	°	′	
Spire on Baptist Church (mark)	52	20.5	west of north
Northwest corner of school building	51	18.0	east of north
Northeast corner of creamery	16	59.5	east of south
Southwest corner of creamery	10	09.3	east of south

Kenyon, Goodhue County.—The station is in an open pasture sloping to the south, about one-half mile south of the town's center. It is (about southwest) 342 feet from the center of the elevated water tower, about in line with the west sidewalk (produced) of the first street west of the tank. The line of trees on the south side of the street south of the tank passes 10 feet south of the station, and it is 46 feet west of the row of trees on the east side of the street west of the tank. The station is not marked. Declination observations were made also at a point 300 feet south of the primary station.

Observations were made at three auxiliary stations. Station A was in the county road, 3.2 miles south of the primary station. Station B was in the county road 2¼ miles north and 2¼ miles west of the primary; station C was in the middle of the road 2½ miles east and 2¼ miles north of the primary.

Kiester, Faribault County.—The station is in the city park, just north of the town's center. It is 86.3 feet north of the south fence, 94.9 feet northwest of the southeast corner, 41.4 feet west of the east fence, and 115.8 feet east of the west fence. The station is marked by a limestone post 6 by 6 by 18 inches, with a brass plate in top, which projects 3 inches above the ground. The following true bearings were determined:

	°	′	
Spire on high-school cupola (mark)	61	58.5	west of south
Right edge of high school	64	44.2	west of south
Spire at apex of elevated water tower	15	13.2	west of north
Northeast corner of a brick block in town	26	34.4	west of south

A similar stone 211.3 feet to the north marks the true meridian. This stone is 41.6 feet west of the east fence, and 1.6 feet from the north fence.

Observations were made also at 4 auxiliary stations. Station A was in a pasture 3 miles north of town, 400 feet north of the township line, and 40 feet east of the road fence; station B was in Bricelyn, in the park east of the high school, about 4 miles west and 1 mile north of Kiester; station C was 5½ miles east and 2 miles south of Kiester, in the middle of the county road, 178 feet southeast of the southeast corner of La Valley schoolhouse; station D was 3 miles south of Kiester on the State-line road, about one-fourth mile east of the main north-south road.

Le Roy, Mower County.—The station is in the southwest quarter of the Protestant cemetery, 1 mile northwest of the town's center. It is 299.5 feet south of the north fence, 190.5 feet north of the south fence, 123.8 feet east of the west fence, 103.3 feet west of the northwest corner of the cemetery house, 40.3 feet southwest of the southwest corner of the Spencer monument, and 35.1 feet southeast of the southeast corner of the Brownlow monument. The station is marked by a Bedford limestone post 6 by 6 by 18 inches, with a brass plate in the top, which projects 2 inches above the ground. The following true bearings were determined:

	°	′	
Spire on high-school cupola (mark)	51	04.7	east of south
Center of cross on top of Bogan monument in Catholic cemetery	63	52.0	east of north
Spire on east elevated tank	57	45.3	east of south
Apex of west elevated tank	62	51.5	east of south

MINNESOTA—continued.

Mabel, Fillmore County.—The station is in the center of the Mabel Cemetery, about one-half mile northwest of the town's center. It is 121 feet south of the north fence, 55.2 feet southwest of the Rasmus monument, 23.5 feet east of the east side of the main drive, and 44.1 feet east of the Larkin monument. The station is not marked. Declination observations were made also at a point 312 feet from the primary station in the direction of the Lutheran Church spire.

Three auxiliary stations were occupied. Station A was in a road about 3.5 miles northwest of the primary station and one-eighth mile east of Newberg; station B was in a pasture west of the road, 2½ miles east and 1½ miles north of the primary; station C was in a road about 2.8 miles south and west of the primary and one-third mile south of the State line.

Mankato, Blue Earth County.—The station of 1908 was reoccupied. It is on the grounds of the county poor farm, about 4 miles south of the city on the road to Good Thunder. It is in the field south of the driveway leading to the main building, near the northeast corner of the field. It is 21.3 feet from the east fence along the Good Thunder road and 20.7 feet from the north fence. The station is marked by a limestone post 6 inches square, sunk flush with the surface of the ground, and letttered U. S. C. & G. S. The following true bearings were determined:

	° ′
Cupola on poor farm barn (mark)	74 00.3 west of south
Telegraph pole on crest of hill	1 13.9 east of south
South edge of chimney on house across road	77 12.7 east of south
Northeast corner of house north of road	25 29.2 west of north
Northeast corner of main building at poor farm	84 14.0 west of south

Olivia, Renville County.—The station is on the high-school grounds, about one-fourth mile southeast of the town's center. It is 22 feet south of the north walk and 53.5 feet east of the west walk; 59.5 feet southeast of the intersection of these walks at the northwest corner of the grounds; 5.5 feet north of the circular walk at the end of the main north-south cement walk, and the east edge of this latter walk (produced northward) passes 2½ feet east of the station. It is marked by a round cement post 6 inches in diameter and 2 feet long with brass plate in top, which projects 1 inch above the ground. The following true bearings were determined:

	° ′
Spire on courthouse tower (mark)	45 08.9 east of north
Northeast corner of east high-school building (on brick)	50 12.3 east of south
Right edge of left brick pillar at main entrance to high school	1 44.4 east of south
Extreme northwest corner of south high-school building	15 06.1 west of south

Rushford, Fillmore County.—The station is in the city park, about 1 block west and a little south of the high school, near the town's center. It is 81.5 feet north of the walk on the south side of the street south of the park, 136.9 feet east of the cement walk on the west side of the park, 127.5 feet northwest of the northwest corner of the Lutheran Church, and 60.1 feet west of the west side of the band stand. The station is marked by a Bedford limestone post 6 by 6 by 20 inches with a brass plate in top and set flush with the ground. The following true bearings were determined:

	° ′
Northwest corner of high-school foundation (mark)	57 54.4 east of north
Northeast corner of corner stone of Lutheran Church	51 58.6 east of south
Flagpole on city hall	13 11.3 east of south
Right edge of Free Church foundation	82 39.5 west of north

St. Peter, Nicollet County.—The station is on the south side of the fairgrounds near the main entrance, about one-half mile north of the town's center. It is 73 feet northeast of the northeast corner of the ticket office building, 51.5 feet northeast of the east gatepost, 9 feet east of a light board fence, 18.5 feet north of the south board fence of the fairgrounds, 40 feet south of the east end of a picket fence running around the outside of the track, and near the west end of a box-elder grove. It is marked by a limestone post 7 by 10 by 24 inches, lettered U. S. with cross and drill hole set flush with the ground. The following true bearings were determined:

	° ′
Northeast corner of a house (mark)	74 47.8 west of north
Northeast corner of main exhibition hall	52 42.4 west of north
West gable of a stone house	5 51.1 west of north
Southeast corner of large house	26 35.9 east of north

Wells, Faribault County.—The station is in the racing park, about one-half mile south of the town's center. It is in the grove on the north side of the track, about in line with the fourth row of trees from the track, 78 feet south of the fence north of the grove, 245 feet north and a little east of the north corner of the grandstand, and 416 feet east of the east side of the main street. It is not permanently marked.

Observations were made also at four auxiliary stations. Station A was on the township line 4 miles south of town, 400 feet east of the main road; station B was on the school grounds 3 miles north of town; station C was on a north-south road 4 miles west of town, one-fourth mile south of the main east-west road; station D was on a north-south road 3 miles east of town, in line with the second east-west fence south from a country school.

MINNESOTA—continued.

Winnebago, Faribault County.—The station is near the south edge of the large wooded lot just south of Mr. Holley's house, on the north edge of town. It is 21.5 feet south of the row of large maples on the south edge of the lot; 131 feet north of the board walk to the south, and 48.5 feet from the cement walk on the west. The station is not marked.

MISSISSIPPI.

Aberdeen, Monroe County.—The station is in the eastern part of the Frisco System Railroad reservation, about three-fourths mile north from the town's center. It is 50.2 feet southwest from a cross of galvanized nails about 1 foot above the ground in a blaze in the trunk of an oak tree about 4 feet in diameter, and 55.8 feet southeast from a triangle of galvanized nails in a blaze in the trunk of an oak tree about 4 feet in diameter. It is also 110.5 feet west from the fence to the east. It is marked by the neck of a white glass quart bottle buried about 3 inches below the ground. The following true bearings were determined:

	° ′
Top of water tank of Carter & Lann Hardware Co	2 46.6 west of south
Center of top of courthouse cupola	3 23.0 east of south
Top of town water tank	12 57.4 west of south
Top of cotton compress cupola	57 54.9 west of south

Booneville, Prentiss County.—The station is in the northern part of the grounds surrounding the Booneville Institute, about one-half mile west from the town's center. A meridian line 219.2 feet long was established. The north end is 40.8 feet from the boundary fence to the north and 180.2 feet northwest from the northwest corner of the institute building. It is marked by a limestone post 6 by 6 by 30 inches, projecting about 3 inches above the ground, with a brass magnetic station mark in the top. Magnetic observations were made at a point 7.2 feet northeast of this stone in the direction of the west gable of Richard Burns's house. The following true bearings were determined at the north stone:

	° ′
West gable of Richard Burns's house (mark)	50 02.4 east of north
Upper northeast corner of E. G. Miller's barn, under eaves	75 26.6 east of south

A sandstone post, 4 by 6 by 28 inches, projecting about 3 inches above the ground, marks the south end of the meridian line. It is 110.2 feet a little south of west from the southwest corner of the institute building.

Brookhaven, Lincoln County.—The station of 1905 on the grounds of the Whitworth Female College was reoccupied. As two brick buildings had been built near this station, a new one was established in the southeastern part of the Cassedy pasture, which was formerly laid out as a subdivision, about one-half mile north from the town's center. It is 58 feet west from the west boundary fence of the Farmers' Union Warehouse Co.'s ground, 145 feet northeast from the northeast corner of F. O. Connant's barn belonging to a house rented by Mrs. Mary Henderson, and 152.5 feet north from the north fence of the lane leading to the Farmers' Union warehouse. It is marked by a 4-inch glazed pipe with a magnetic station marking plate set in cement in the top, which projects about 6 inches above the ground. The following true bearings were determined:

	° ′
East gable of W. E. Swett's house (mark)	23 28.1 west of south
North gable of A. T. Witbeck's house	42 26.2 west of south
South gable of Capt. Powell's house	6 49.5 west of north
Upper northeast corner of Farmers' Union warehouse, under eaves	70 56.9 east of south

The north point of a meridian line was set about 540 feet distant near the north fence of the pasture. It is marked by a limestone post 38 by 6 by 6 inches, projecting about 12 inches above the ground, and lettered U. S. C. & G. S., 1901.

Declination observations were also made at a test station about 200 feet northeast of the old station.

Carrollton, Carroll County.—The station is in the southwestern corner of a pasture belonging to Holmes Southworth in North Carrollton, about 200 feet west of the proposed site of a schoolhouse, and about 1½ miles north from the courthouse at South Carrollton. It is 86 feet from a fence along a field to the west, 80.7 feet from the boundary fence to the south, and 103 feet southwest from the center of the north trunk of a large double live oak tree. It is marked by a limestone post 6 by 6 by 33 inches, projecting about 4 inches above the ground, and having a brass magnetic station mark in the top. The following true bearings were determined:

	° ′
Top of Presbyterian Church steeple at South Carrollton (mark)	1 17.5 east of south
Center of northwest corner of N. Morgueton's store (The Famous Store)	31 06.9 west of south
East gable of a house painted yellow	51 36.9 west of south

About 650 feet distant a cement slab 2 by 12 by 24 inches was set with its top about 2 inches above the ground as the north post of a meridian line. It is marked by a cross and the letters U. S.

MISSISSIPPI—continued.

Cleveland, Bolivar County.—The station is in the southeastern part of the athletic field of the Bolivar County Agricultural College, about three-fourths mile southwest from the town's center. It is 61.9 feet northwest from the iron stake at the southeast corner of the college grounds and 238.3 feet southeast from the southeast fence of the barnyard. It is also about 350 feet southeast from the southern or girls' dormitory. The station is marked by a limestone post 6 by 6 by 33 inches, with a brass magnetic station mark set in the top, which is about 5 inches above the ground. The following true bearings were determined:

	° ′
Top of courthouse cupola (mark)	70 47.5 east of north
South gable on roof of main Agricultural School building	24 58.8 west of north

A stake with a nail in the top was set 381.5 feet due north to mark the north end of a meridian line. The stake is to be replaced by a cement post.

Corinth, Alcorn County.—The station of 1905 was reoccupied. It is in the grounds of the public school, 76.3 feet from the southeast corner of the building and 86.6 feet from the northeast corner. It is 30.7 feet from the fence to the south. The station is marked by a blue limestone post, set flush with the ground and lettered U. S. C. & G. S., 1905. The following true bearings were determined:

	° ′
Iron pipe on S. P. Bramlitt's house (mark)	70 20.9 east of south
Top of cupola of new Baptist Church	57 42.4 west of north

Edwards, Hinds County.—The station is located in the northern section of the public school playgrounds, in the southeast section of the town. It is 77 feet from the wire fence on the east edge of the grounds, 38 feet south of a large tree, and 53 feet southeast of a similar tree. The frame school building is about 100 feet distant. The station is marked by a granite post 10 by 10 by 36 inches, projecting 1 inch above the ground, with a magnetic station marker in the top. The following true bearings were determined:

	° ′
East gable of residence one-fourth mile distant	18 25.9 east of south
North gable of residence 200 yards distant	27 23.9 west of south
Baptist Church spire	53 29.2 west of south
West gable of lodge hall	69 31.0 west of south
Methodist Church spire	79 06.6 west of south

Friar Point, Coahoma County.—The station is in the southwestern part of a field belonging to G. E. Rogers, about one-fourth mile southwest from the town's center, and immediately southwest from the ground surrounding Mr. Rogers's house. It is 105.4 feet from the boundary fence to the northwest, 59.5 feet northwest from the west corner of the fence surrounding Mr. Rogers's garden, and 67.2 feet from the boundary fence to the southwest. The station is marked by a limestone post 6 by 6 by 30 inches with a magnetic station marking plate set in the top, which is about 4 inches above the ground. The following true bearings were determined:

	° ′
Center of southwest corner of Gazette office (mark)	66 25.5 east of north
Top of town water tank	25 39.5 east of north
Northwest gable of G. E. Rogers's house	28 59.7 east of north

Fulton, Itawamba County.—The station is in the eastern part of a pasture south across the street from the sawmill, and about one-fourth of a mile southwest from the town's center. The pasture is owned by the Gather family. The station is 66.9 feet from the boundary fence to the east, 66 feet northwest from the center of the trunk of a large lone pine tree, and 53.8 feet a little north of east from the center of the trunk of another large tree. It is marked by a limestone post 6 by 6 by 33 inches, projecting about 5 inches above the ground, and having a brass magnetic station marker in the top. The following true bearings were determined:

	° ′
Top of courthouse cupola (mark)	77 02.5 east of north
South gable of a barn	75 22.7 east of north
Top of east edge of sawmill water tank	0 11.5 east of north

Greenville, Washington County.—The station of 1905 was reoccupied. It is in the Gentile cemetery, 1 mile due south of the courthouse. It is on the south edge of the large circular driveway and is 173.0 feet and 168.0 feet, respectively, from two red-oak trees on the south line of the grounds, bearing 5° west of south and 10° east of south. It is also 73 paces from an iron fence on the east line of the grounds. The station is marked by a limestone post 6 by 6 by 30 inches set flush with the ground and lettered on top "U. S. C. & G. S., 1905." The following true bearings were determined in 1905:

	° ′
Point of courthouse cupola (mark)	1 33.0 east of north
Colored Methodist Church steeple	50 45.9 west of north

MISSISSIPPI—continued.

Mayersville, Issaquena County.—The station is on the east side of the levee which is at the west end of the town. It is at the west end of the road one block south of the courthouse square. It is 31 feet north of the line of trees, extended, on the north side of the road just mentioned, 18 feet from the base of the levee on the west, and about 155 feet from the wire fence on the south. The station is marked by a cement post 6 by 6 by 27 inches, projecting 3 inches above the ground, with a magnetic station marker set in the top. The following true bearings were determined:

	° ′
West gable of barn ¼ mile away (mark)	11 15.1 east of north
West gable of garage 400 feet distant	51 45.8 east of north
West gable of store 250 yards distant	77 38.3 east of north
West gable of residence 300 feet distant	68 46.8 east of south

Okolona, Chickasaw County.—The station is in the south central part of the grounds of the Okolona Industrial Institute (African), about 1½ miles northwest from the town's center. It is 264.7 feet northwest from the northwest corner of the building marked "Springfield," and 262.2 feet a little north of east from the southeast corner of the Palmer barn. The station is marked by a limestone post 6 by 6 by 33 inches, projecting about 9 inches above the ground, and having a brass magnetic station mark in the top. The following true bearings were determined:

	° ′
Top of Second African Baptist Church steeple (mark)	36 00.2 east of south
Upper southwest corner of building marked "Springfield," under eaves	37 10.0 east of south
Upper northwest corner of McDougall shop, under eaves	30 23.0 east of north
Lower southeast corner of Abbott Hall	88 11.4 east of north

Port Gibson, Claiborne County.—The station is in the northern part of the campus of the Chamberlain Hunt Presbyterian Academy, about 1 mile southeast from the town's center, and about 390 feet northwest from the academy building. It is 123.3 feet southeast from the center of an iron water plug at the north corner of the campus, 54.7 feet east from a cross of galvanized nails about 1 foot above the ground in the trunk of a magnolia tree, and 104.9 feet southwest from a line of galvanized nails about 1 feet above the ground in the trunk of an oak tree. It is marked by the neck of a quart glass bottle buried about 3 inches under ground. The following true bearings were determined:

	° ′
Lower northwest corner of academy building (mark)	51 06.0 east of south
Upper northeast corner of president's house, under eaves	28 57.0 east of south
Upper northeast corner of Dr. Redus's house, under eaves	61 16.2 west of north
Lower southwest corner of academy building	34 16.6 east of south

Raymond, Hinds County.—The station is in the pasture adjoining the schoolhouse grounds on the west, in the southeast section, and about one-fourth mile north of the center of the town. It is 27 feet from the fence to the south, 86 feet from the one on the east, and about 70 feet southeast of a tree. The exact spot is marked by a limestone post 6 by 14 by 22 inches, with a brass marker in the top, and set flush with the surface of the ground. The following true bearings were determined:

	° ′
Gable of barn ¼ mile away (mark)	6 39.2 west of north
Lower southeast edge of pillar on porch of schoolhouse	83 05.4 east of north
Southeast edge of Gibbs's residence	41 36.8 west of south

The north end of a meridian line, 270 feet long, is marked by a stone 18 by 12 by 13 inches, set flush with the surface of the ground, and having a marker set in the top.

Vaiden, Carroll County.—The station is in the northern part of the grounds surrounding the public school, about one-half mile southwest from the town's center. It is 172.2 feet north from the northwest corner of the schoolhouse and 164 feet northwest from the northeast corner of the same. It is marked by a limestone post 6 by 6 by 30 inches, projecting about 4 inches above the ground, and having a brass magnetic station mark in the top. The following true bearings were determined:

	° ′
Top of courthouse cupola (mark)	82 02.1 east of north
Spire of Baptist Church	30 07.3 east of south
Upper northeast corner of C. H. Tillman's house, under eaves	69 43.6 east of south

Walthall, Webster County.—The station is in the northwestern part of O. F. Carroll's pasture, immediately south and west of O. F. Carroll's house lot, and about one-half mile south from the town's center. It is 79.4 feet from the boundary fence to the north and 155.6 feet from the boundary fence to the west. The station is marked by a limestone post 6 by 6 by 33 inches, projecting about 7 inches above the ground, and having a brass magnetic station mark in the top. The following true bearings were determined:

	° ′
Southeast corner of O. F. Carroll's house under eaves (mark)	64 18.4 east of north
Triangle of galvanized nails about 2½ feet above the ground in the trunk of a double maple tree about 318 feet distant	14 23.3 west of south

MISSISSIPPI—continued.

West Point, Clay County.—The station of 1901 was reoccupied. It is in the west part of the town, on the grounds of the Mary Holmes Seminary. It is 156.4 feet from the southeast corner and 203.1 feet from the southwest corner of the main building. The station is marked by a stone post 6 inches square, projecting 4 inches above the surface of the ground. The following true bearing was determined in 1901:

	° ′
East edge of chimney on cotton mill, distant about three-fourths mile (mark)	2 13.4 east of south

MONTANA.

Hamilton, Ravalli County.—The station is located about 2 miles west of the town in the southeastern portion of the cemetery, in an unimproved part next to the Bitter Root River. It is due east of the Toole monument and about 160 feet distant, 15 feet from the edge of the river bank, 66.2 feet from a large pine tree standing on the bank near the cemetery line, 68.5 feet from corner post of the cemetery line, and 125.5 feet from monument bearing inscription and name of Biddiscombe. Small pine trees are growing about the station. The following true bearings were determined:

	° ′
Ball on cupola of courthouse	89 31.6 east of north
Cross on Catholic Church (mark)	82 48.7 east of south
Cross on Methodist Church South	79 37.8 east of south

Phillipsburg, Granite County.—The station is about one-half mile north of the business section of the town, in the eastern end of the cemetery, in a portion not yet in use. It is 34.3 feet from the east fence and 243.1 feet from the north fence. It is marked by a bronze station mark set in the top of a granite post 8 by 8 by 24 inches, projecting about 3 inches above the ground. The following true bearings were determined:

	° ′
Point on railroad water tank	40 13.8 west of south
Cross on Catholic Church (mark)	3 08.7 west of south
Spire on district schoolhouse	0 48.6 west of south
Flagpole on high-school building	5 08.5 east of south

Roundup, Musselshell County.—The station is about 2 miles northeast of Roundup in the northwest corner of the city cemetery, in a portion which has not yet been divided into lots. It is 56.6 feet from the west fence and 148.6 feet from the north fence. The station is marked by a bronze station mark in the top of a sandstone post 8 by 8 by 24 inches, set nearly flush with the surface of the ground. The following true bearings were determined:

	° ′
Flagpole on public-school building	67 25.3 west of south
Cross on Catholic Church (mark)	64 56.3 west of south
Cross on Methodist Church	62 06.1 west of south
West edge of smokestack	39 13.0 east of south

Terry, Custer County.—The station is beyond the original city limits in the tract known as the Filmsworth Addition, about one-half mile south of the railroad tracks. Observations were made over a red post on the east boundary of Logan Street and the south boundary of a proposed cross street running off from Logan Street past the house lot of W. A. Northrup. The street property is 80 feet wide and each corner of this street is marked by a red post. The station is unmarked except for the red post.

	° ′
Flagpole on cupola of high school (mark)	31 12.8 east of north
Point on Chicago, Milwaukee & St. Paul water tank	7 01.2 east of north
Gable of grain elevator (Eastern Montana Elevator Co.)	0 17.1 east of north
Cross on Catholic Church	59 19.8 west of north

Thompson Falls, Sanders County.—The station is on private property belonging to George Herman, across the river from Thompson Falls, and about 1,200 feet above the proposed location of the dam of the Thompson Falls Power Co. It is about 8 feet from the edge of the bank and directly back of a large cottonwood tree, and 112.7 feet northeast of the northeast corner of an unpainted frame house. It is marked by a bronze marker in the top of a cement post 1 foot in diameter and sunk 2 feet deep, projecting 2 inches above the ground. The following true bearings were determined:

	° ′
Spire of courthouse (mark)	42 39.9 west of north
Point on roof of railroad water tank	15 27.0 west of north
Flagpole on cupola of high school	8 59.2 east of north
Spire on district school No. 8	18 05.3 east of north

MONTANA—continued.

White Sulphur Springs, Meagher County.—The station lies between the business section of the town and the railroad, in the southwest corner of the Springs Park square of the White Sulphur Springs town site. The square was formerly inclosed by a fence, but the fence has been removed, and the posts cut to the ground. The station is 10.5 feet from the south line, and 11.5 feet from the west line. The station is marked by a bronze station mark in the top of a cement tile, 6 inches in diameter, filled with cement and planted level with the surface of the ground. The following true bearings were determined:

	° ′
Spire on tower of Donahue house	36 33.4 east of north
Spire on cupola of Opera House (mark)	89 01.2 east of north
Point on cupola of high school	77 35.8 east of south
Flagpole on cupola of grade school	72 19.0 east of south

NEBRASKA.

Lincoln, Lancaster County.—The station of 1911 was reoccupied. It is on the campus of the State University Agricultural School, about 2 miles northeast of the town's center. It is between the roads, just northeast of the Home Economics Building. It is marked by a Bedford limestone post 8 by 8 by 36 inches, with a brass plate in the top. The stone projects about 6 inches above the ground. The following true bearings were determined from the meridian line:

	° ′
Southeast corner of Agricultural Hall just above base stone (mark)	12 29.8 west of south
Southwest corner plant industry building, level with third floor	29 00.6 east of south
Northeast corner of base stone of Home Economics Building	75 41.5 west of south

A similar stone 494 feet to the south marks the true meridian.

NEW HAMPSHIRE.

Canaan, Grafton County.—The station is about one-quarter of a mile east of the center of the town in Rand's field, immediately in the rear of the Riverside Hotel. It is 95.6 feet from the north edge of the hotel barn and 256.2 feet from the south corner of Rand's garage. First base of the baseball diamond is about 70 feet north of it. The station lies outside the foul line. It is marked by a rough granite post with a brass magnetic station marker in the top, projecting 1 inch above the ground. The following true bearings were determined:

	° ′
East gable of barn, 500 feet away (mark)	25 31.6 east of south
Baptist Church spire	87 42.0 west of south
Weather vane on Rand's barn	49 43.0 west of north
South gable of Sargent's barn	20 26.8 east of north
Cupola of Terrill's barn	60 41.2 east of north

Franklin, Merrimack County.—The station is in the southern part of the clearing in Odell Park. It is a few feet north of the road running through this section and about 190 feet from the south end of the grandstand, also about 75 feet from the southwest edge of the clearing. A prominent tree south measures 42.6 feet from the station. It is 105 feet from the south fence of the tennis court and about 4 feet west of the east fence of the court produced. The station is marked by a granite post 8 by 8 by 33 inches, projecting 4 inches above the ground, and having a bronze magnetic station mark in the top. The following true bearings were determined:

	° ′
North corner of residence 200 yards away (mark)	4 16.4 east of south
Cupola on city stables	24 06.0 west of south
North gable of lumber shed	38 11.5 west of south
Northwest corner of concrete base of armory	67 06.4 east of north
Southwest corner of Griffin's sawmill	84 35.8 east of north

A similar stone marks the north end of a meridian line 316 feet long.

Laconia, Belknap County.—The station is in the north end of the city park and fairgrounds, which is about two-thirds of a mile north of the town's center. It is inside the north turn of the track, about 115 feet from the center of the track due north. Two prominent trees are 118 feet and 107 feet east and southeast, respectively, of the station. The station is marked by a granite post 8 by 8 by 36 inches, projecting about 5 inches above the ground, and having a bronze magnetic station mark in the top. The following true bearings were determined:

	° ′
West edge of house, one-half of a mile away (mark)	0 57.1 west of south
Lower northwest corner of grandstand	34 39.0 west of south
Church spire in Lakeport	19 58.4 east of north
Church spire in Lakeport	35 18.5 east of north
Church spire in Lakeport	39 34.0 east of north

NEW HAMPSHIRE—continued.

The south end of a meridian line 977 feet long is marked by a similar stone set on the embankment outside the track at the south turn.

Warren, Grafton County.—The station is in a large field belonging to Mr. Bixby, on the east side of the town. It is in the section of the field adjoining the barn, about 300 yards south of it. The wire fence on the south is 61 feet from the station and the one on the west 160 feet from it. It lies about 10 feet from the edge of a depression in this corner of the field and is on the highest point in the immediate vicinity. The station is marked by a concrete post 7 by 7 by 30 inches, projecting about 1 inch above the surface of the ground, and having a brass magnetic station mark in the top. The following true bearings were determined:

	° ′
West side of tree 500 feet away (mark)	7 47.8 east of south
Baptist Church spire	30 41.4 west of north
South gable of Bixby barn	22 02.5 west of north
South gable of house 1 mile away	12 58.3 west of north

The north end of a meridian line 2,180 feet long is marked by a similar post. This post is about 3 feet south of a stone wall on the north edge of the field, and about 225 feet from the one on the east.

Declination observations were made also at a point about 500 feet due north of the magnetic station.

Whitefield, Coos County.—The station is located in the schoolhouse grounds, about two blocks northwest of the town square. It is in the northeast section of the lot, near the edge of a steep terrace, and about 10 feet northwest of a small tree. The frame schoolhouse is about 150 feet southwest and a wire fence runs along the north edge of the lot about 40 feet from the station. The station was not marked.

Winchester, Cheshire County.—The station is on the baseball field, about one-half mile southeast of the center of the town. It is in left field about 135 feet from third base, 155 feet from second base, 15 feet from the fence on the southeast, about 200 feet northeast of a lone elm tree, and a few feet inside the foul line across third base. It is marked by a concrete post 8 by 8 by 30 inches, with a brass marker in the top, set flush with the surface of the ground. The following true bearings were determined:

	° ′
Small monument in cemetery nearest road (mark)	32 29.4 east of north
South gable of house 500 feet away	5 13.6 west of north
Cupola on barn 200 yards away	56 13.8 west of north
East gable of residence 200 yards away	65 03.9 west of north
South gable of barn 300 feet away	71 52.3 east of north

NEW JERSEY.

Bloomfield, Essex County.—Observations were made at a point about 2 miles northwest of the center of town, and about 1 mile north of the Glen Ridge station on the Erie Railroad. The point is reached from this station by following Ridgewood Avenue. It is located on vacant ground, formerly used for golf grounds by the Glen Ridge Golf Club, and located about one-half mile south of the present grounds of the club. The point used is on the east side of Ridgewood Avenue about 80 feet east of a place where some broken down steps lead up a low bank into the grounds, and 60 feet west of a pile of loose stones. The station was not marked.

Bordentown, Burlington County.—Observations were made at a point about seven-eighths mile east of the center of town, in a small field or lot on the south side of the highway to Crosswicks. The lot belongs to the Davis estate, and is just east of a pear orchard belonging to the Warner estate, which orchard is just east of a stone (or imitation stone) house occupied by Dr. Stull and also belonging to the Warner estate. The point at which observations were made is about 150 feet south from the highway and about 170 feet east of a red two-story stable or outhouse in the orchard; it is 140 feet east of the west fence of the lot, and 70 feet north of the south fence and lane, being just north of a wild-cherry tree close to the last-named fence. The point was not marked.

Chester, Morris County.—Observations were made at a point about one-half mile north of the center of town, on land belonging to Mr. Kelley and back of his house, on the west side of the road leading to the Delaware, Lackawanna & Western Railroad station and to Budd Lake. The point is about 120 feet west of the house, and is 50 feet northwest of the northwest corner of the garage. The station is marked by a natural bowlder about 3 feet square, with a crack across it. A bronze magnetic station mark is cemented in the crack, its surface being about 1 foot above the surrounding ground. The following true bearings were determined:

	° ′
South gable of small frame barn or shed, about 700 feet away (mark)	24 01.4 west of north
West gable of barn on hill about 1,800 feet away	39 28.6 west of north
East gable of long brick building about 1,300 feet away	8 00.5 west of north

Franklin Furnace, Sussex County.—Observations were made at a point about one-fourth mile southwest of the railroad station, in a field opposite and east of the golf grounds. The point is about 100 feet southeast and uphill from an opening in the stone wall on the west side of the road, nearly opposite a cedar tree at the west edge of the golf grounds. The point was not marked.

NEW JERSEY —continued.

Frenchtown, Hunterdon County.—Observations were made at a point about 1 mile north of the center of town, in a pasture belonging to E. R. Case, in the low part of the pasture lying between the side of a hill and the highway to Phillipsburg. The point is 80 feet east of the fence on the east side of the highway, 200 feet north of the south fence of the pasture, 150 feet west of the cliff at the base of the hill, 110 feet southwest of a telephone pole, and 140 feet northwest of the next telephone pole. The point is marked with a marble post 5 by 5 by 29 inches, having the regular magnetic station mark cemented into its top, and buried with its top about 2 inches above the level of the ground. The following true bearings were determined:

	° ′
Steeple of Methodist Church (mark)	7 02.4 east of south
West gable of frame barn on hilltop about three-fourths mile away	24 31.4 west of north
West gable of two-story frame house with slate roof, about 300 feet away	28 47.0 west of south

Hackettstown, Warren County.—Observations were made at a point about three-fourths mile southeast of the center of town, in an open plot just inside the gate of the Union Cemetery. The point is north of a row of large willow trees and northwest of Musconetcong Creek, which runs through the cemetery property; it is about 290 feet east of the main entrance to the cemetery, about 50 feet south of a hedge marking the north boundary of the property, about 50 feet northwest of a pile of stones along the bank of the creek, and about 160 feet north of the west end of an iron bridge. It is 57 feet west of a telephone pole just beyond the boundary hedge, 62 feet north of the next telephone pole, and 35 feet southwest of a walnut tree 8 inches in diameter. The point was marked with a marble post 8 by 8 by 30 inches, having the regular magnetic station mark cemented into its top, and set with its top even with the ground. The following true bearings were determined:

	° ′
First Presbyterian Church steeple (mark)	22 19.5 west of north
Northwest edge of capstone on north pillar of cemetery gate	88 20.2 west of south

Hightstown, Mercer County.—Observations were made at a point about three-fourths mile north of town, reached by following the New Brunswick highway for about one-half mile from the center of town, and then turning to the west on the first road that forks to the west after leaving town. This road branches off about one-fourth mile south of an iron bridge on the main highway. The point is in a pasture belonging to Mr. Pickering, on the east side of the road, near the edge of a bank which overlooks a low-lying meadow on the west. The point is about 200 feet southeast of the Pickering house, 27 feet east of the rail fence along the road, and 50 feet southeast of the southern one of two wild cherry trees nearly in the fence line. The point is marked by a gray stone post 6 by 6 by 24 inches, having a brass magnetic station mark leaded into its top, and buried with the top about 2 inches above the ground. The following true bearings were determined:

	° ′
Tower of old church (First Baptist Church)	1 16.4 west of south
East edge of top of water tower (edge of railing)	19 50.2 west of south
Projecting north gable of barn 1,000 feet away	77 32.8 east of south
Steeple of First Presbyterian Church	4 58.1 east of south

Lambertville, Hunterdon County.—Observations were made at a point about 1 mile southeast of the center of town, in an open space near the center of an orchard belonging to Mr. Rook, situated on high ground. The place is reached from town by going south on South Franklin Street across a bridge, then turning eastward and uphill to Cottage Hill, then turning south or southeastward on Studdiford Street and following it about one-half mile into the country; the orchard being northeast of the road. The point used is 150 feet north of Mr. Rook's house, 100 feet northwest of the barn, 170 feet east-northeast of the fence at the road, 32 feet southeast of an apple tree 10 inches in diameter, 41 feet southwest of a peach tree 6 inches in diameter, and just south of an outcrop of rock. The station is marked by a white marble post 5 by 5 by 24 inches, buried with its top about 2 inches above the ground, and having the brass magnetic station mark cemented in its top. The following true bearings were determined:

	° ′
Front gable of house about 1,500 feet away on opposite hill	28 07.1 west of north
West gable of red barn one-half mile away, near hilltop	3 53.0 west of north
East gable of barn about 700 feet away	67 13.5 west of south

Millington, Morris County.—Observations were made on ground belonging to the Nash estate and used as club grounds near the top of a hill one-fourth mile north of the railroad station. The point is 95 feet (measured on slope) south of the southwest corner post of the back stop of the tennis court, 126 feet from the southeast corner post, and 92 feet northwest of a misshapen apple tree 15 inches in diameter at the corner of the woods. The point was marked with a 2-foot length of 4-inch drain tile, having the regular magnetic station mark set in its top in neat Portland cement, and planted with its top even with the ground. The following true bearings were determined:

	° ′
North side of top of chimney of Acme Harrow Works (mark)	16 53.4 west of south
East gable of large red barn next to large silo about 1,800 feet away	58 17.8 west of south
Steeple of white church about 1½ miles away	77 23.5 west of south

NEW JERSEY—continued.

Mount Arlington, Morris County.—Observations were made on a piece of vacant ground on which it was said that a Roman Catholic Church had formerly been located, but is now torn down. The ground is about 600 feet east and uphill from the post office and the Mount Arlington Hotel. The station was not marked.

New Egypt, Ocean County.—Observations were made in a pasture belonging to Mr. Harker, about 1 mile west of the center of town, on the south side of the highway to Mount Holly, and just beyond a concrete culvert over a small stream, being the first culvert after leaving town. The point at which the observations were made is 120 feet south of the rail fence north of the pasture, 150 feet southwest of the telephone pole next to the bank of the stream, 120 feet south-southeast of the next telephone pole, and about 40 feet west of the edge of the bank which rises from the stream. The point is marked with a piece of 3-inch terra-cotta pipe 26 inches long, buried with the bell end about 1 inch above the surface of the ground, and having a brass magnetic station mark cemented in the top. The following true bearings were determined:

	°	′	
West gable of red barn 1,000 feet away	52	39.7	east of north
West gable of house across highway, 700 feet away	35	55.4	east of north

Plainfield, Union County.—Observations were made at a point about 2 miles south of the center of town, on a tract of vacant land which has been laid off in lots, but without much apparent prospect of being built on. The tract is opposite and west of the golf grounds, which are located just south of Hillside Cemetery. The point at which observations were made is on lot 34, and is 170 feet west of the property line on the main street, and 50 feet south of the property line on a minor street running east and west. The station was not marked.

South Orange, Essex County.—Observations were made at a point about 1 mile southwest of the center of the town, back of and uphill from the waterworks. The point is on waste ground, said to belong to Mr. Bamberger, the Newark department store owner. It is about 100 feet uphill from the uphill side of a covered reservoir, and about 300 feet downhill from a place where a new reservoir is under construction. The point was not marked.

Summit, Union County.—Observations were made at a point about 1 mile southwest of the center of town, in a pasture belonging to Dr. Reinle's tuberculosis sanitarium. The pasture is on low ground east of the sanitarium building, and is opposite some large greenhouses; it is reached from town by Prospect Street and then Blackburn Road. The observations were made at a point 100 feet south of the north fence of the pasture (along Blackburn Road), and 340 feet west of the east fence. The station was not marked.

Trenton, Mercer County.—The station of 1910 was reoccupied. It is on the front lawn of the grounds of the State hospital for the insane, about 400 feet southeast and in front of the main building. It is about 94 feet east of the large tulip tree in the center of the lawn, 61 feet about west-southwest of a maple tree near the pathway, and about 77 feet southwest of another maple tree near the pathway. The station is marked by a marble post 6 by 6 by 18 inches (unlettered), buried flush with the ground, and having a hole in its center to mark the exact point. The following true bearings were determined:

	°	′	
Tip of sundial near fountain in front of main building (mark)	63	58.6	west of north
Peak of central tower on main building	56	22.3	west of north
Peak of west tower on main building	80	08.9	west of north
Northeast gable of barn	37	20.4	east of south

Westfield, Union County.—Observations were made at a point about 1½ mile northeast of the center of town, in Fairview Cemetery, in the part of the cemetery called Hillcrest, about 800 feet southeast of the main gate. The point is 59 feet east-northeast of the northeast corner of the base of the Sergeant monument, 39 feet west-northwest of the northwest corner of the base of the Birdsall monument, and 15 feet south of the south corner of the base of the Baker monument. The station is marked by a concrete post 8 by 8 by 30 inches, set with its top even with the ground, and having the brass magnetic station mark cemented in its top. The following true bearings were determined:

	°	′	
Steeple of Presbyterian Church	47	42.3	west of south
Northernmost of two towers for wireless	80	18.4	east of south
East side of top of chimney of organ works, one-half mile away	29	56.1	east of south

NEW MEXICO.

Deming, Grant County.—The station of 1905 was reoccupied. It is in the northwest corner of a lot owned by A. W. Pollard, about 1 mile south of the Presbyterian Church and one-half mile west of a water tank and windmill at a ranch house. It is 150.4 feet a little south of east of a stone at the intersection of the road along the south limit of the town and a line of telephone poles. It is 99 feet south of the southern town section line, and about 132 feet east

NEW MEXICO—continued.

of a property line to the west, running north and south. The station is marked by a stone 6 by 6 by 30 inches, lettered U. S. C. & G. S., 1905, and projecting 6 inches above the ground. The following true bearings were determined in 1905:

	°	′	
Base of cross on Catholic Church (mark)	39	49.2	east of north
Highest point on Cook's Peak	6	18.1	east of north
Cupola of Presbyterian Church	20	32.2	east of north
Flagstaff on public school	32	24.8	east of north
Flagstaff on high school (new)	30	00.6	east of north

Tucumcari, Quay County.—The station of 1906 was reoccupied. Observations were made over the stake marking the southwest corner of block 30, McGee addition, which is about one-fourth mile southwest of the county courthouse. The stake is 3 by 3½ inches and shows 1 inch above ground. It may be found by reference to the town map. The following true bearings were determined in 1914:

	°	′	
Tip of city water tower (mark)	19	55.0	west of north
Base of cross on Catholic Church	14	21.5	east of north
Base of flagstaff on courthouse	23	05.5	east of north
Point of cupola on grammar school building	53	32.8	east of north
Base of flagstaff on high school	32	28.1	east of south

NEW YORK.

Alexandria Bay, Jefferson County.—The station is near the point occupied by the Lake Survey observers in 1913, on the north end of Squaw Island or the "Casino." It is west of the large hotel south of the wharf, 35.9 feet from the outside edge of the board walk to the northeast, 32.6 feet from the outside edge of the walk to the east, 34.2 feet from the outside edge of the walk to the northwest, 18.4 feet from the far edge of the concrete wall to the southwest, 15.3 feet north of a small tree, and 24.1 feet east of a small tree. It is marked by a rough stone set nearly flush with the surface of the ground, and having a brass magnetic station marker set in the top. The following true bearings were determined:

	°	′	
Sunken rock lighthouse, apex (mark)	31	48.7	east of north
North corner of large store at steamboat wharf	69	14.0	east of north
South tower of hotel on island 200 yards southwest	35	52.9	west of south
Tower of residence on island 200 yards west	81	40.2	west of north
Observation tower of largest building on island	1	35.8	west of north

Camden, Oneida County.—The station is about one-fourth mile east of the center of the town on a strip of pasture land bordering the creek, and owned by Mr. Perrin. It is about 16 paces north of the bank of the stream, 6 paces north of the center of a gravel walk, 21 paces from the south post of the fence dividing the two farms north of it, 2 feet east of this north-south fence extended, and about 200 feet east of a lumber shed. The station was not permanently marked. The following true bearings were determined:

	°	′	
Northeast gable of barn (mark)	37	41.9	west of south
East gable of mill, 400 feet away	74	17.4	west of north
West gable of farmhouse	15	08.7	east of north

Cape Vincent, Jefferson County.—Observations were made at three stations located in the west section of the town in the fields adjoining the Catholic Church on the west and south. Station 1 was located in the road back of the church, nearly one block south of Main Street, near a point probably used as a triangulation station and at present marked by three stones about 6 inches square, projecting 5 inches above the ground—two in line with the east fence and one in line with the west. In order to avoid getting too close to a small building, observations were made on the east side of the wagon road about 75 feet south of the center of the triangle formed by the three stones. This station was not marked.

Station 2 is in the southwest section of Fitzgerald's meadow, about 350 yards south of station 1. It is 58.4 feet from the fence on the west, 105.9 feet from the fence on the south, and is marked by a granite post 6 by 6 by 26 inches, projecting 4 inches above the ground and having a brass marker in the top. The following true bearings were determined:

	°	′	
West edge of house (mark)	26	26.4	east of south
South gable of residence in line with path to Main Street	26	45.2	west of north
Catholic Church spire	9	05.4	west of north
Presbyterian Church spire	32	52.8	east of north
West gable of barn 200 yards distant	51	23.6	east of south

Station 3 was about 325 feet from station 2, in a line parallel with the south fence of the field. This station was not marked.

NEW YORK—continued.

Clayton, Jefferson County.—The station is on Washington Island near the point occupied by the United States Lake Survey in 1913. It is in the northwest part of the island, about 175 feet south of the north shore, 70 feet northeast of the base of an old fallen tree on the west bank, 50 feet southwest of a small tree, and 43 feet northeast of another. The station was not marked, but a rough stone of about 50 pounds was left lying at the spot. The following true bearings were determined:

	° ′
North gable of residence on south bank of river (mark)	23 39.8 east of south
Apex of water tank near railroad	41 57.2 west of south
Spire of Presbyterian Church	57 48.0 west of south
Observation tower on an island	65 37.5 west of north
Base of flag pole on Big Round Island	53 01.0 east of north

Morristown, St. Lawrence County.—Observations were made on the small rocky island occupied by the Lake Survey observers in 1913. It is the smallest of the three islands off Morristown known as the Three Sisters. The station was in the center of the island and was not marked.

Potsdam, St. Lawrence County.—The station of 1909 was reoccupied. It is located in the north-central part of the city park lying just west of the State Normal School. The grounds are thickly covered with trees and surrounded by a low fence of stone posts with chain railing. The station is 40 feet south, 115.5 feet east, and 86 feet west of the fence. It is marked by a 3-inch sewer tile filled with cement and projecting 1 inch above ground. The following true bearings were determined in 1909 and 1914:

	° ′
Methodist Church spire (mark)	71 10.3 west of south
Southeast edge of central fire department building	36 07.6 west of south
South gable of west end of Baptist Church	6 18.0 east of north
Spire of Presbyterian Church	57 57.9 east of north
Northeast edge of normal school, 2 feet above ground	87 10.9 east of south

Pulaski, Oswego County.—The station is about 1 mile south of the center of the town in the northwestern part of a large field owned by Mr. Parkhurst. It is on the east side of the turnpike. A rough wagon road, running diagonally across the field, passes 32 feet north of it. It is on the summit of an irregular rise of ground, about 145 paces from the fence on the north, 178 paces from the center of the turnpike on the west, and 123 paces from a large maple tree to the southeast. It is on the largest of three knolls in the northwest part of the field, which is about 200 yards south of the New York Central & Hudson River Railroad tracks. It is marked by a concrete post 6 by 6 by 30 inches, projecting about 4 inches above ground and having a brass station marker in the top. The following true bearings were determined:

	° ′
East gable of barn 200 yards distant (mark)	7 05.4 west of south
East gable of barn across the road	56 19.8 west of south
East gable of barn on north boundary of field	28 47.4 west of north
East gable of residence one-fourth mile distant	6 42.1 west of north
West gable of residence 250 yards distant	37 16.6 east of north

Rome, Oneida County.—The station of 1912 was reoccupied. It is located on the grounds of the Rome State Custodial Asylum, which is 2 miles west of the city. It is 202 feet northeast of the superintendent's office, and 201.7 feet northwest of the northeast building of the asylum, and 52 feet north of a large maple tree. The station is marked by a Bedford limestone post 6 by 6 by 30 inches, with a brass station marker set in the top and projecting about 4 inches above the ground. The following true bearings were determined in 1912:

	° ′
Steeple of St. Mary's Church (mark)	34 04.7 east of north
Methodist Church steeple	32 16.3 east of north
Northeast corner of northeast building at asylum	87 17.1 east of south
Presbyterian Church steeple	36 41.3 east of north
Base of pole on Hammel's barn	72 04.2 west of south

NORTH DAKOTA.

Bismarck, Burleigh County.—The station of 1907 could not be recovered. The new station is about 20 feet southeast of the old station. It is on the south side of the county courthouse grounds, in line with the south side of the Methodist Episcopal Church, 14 feet north of the south walk and 93 feet east of the west walk. It is marked by a sandstone post 6 by 6 by 18 inches with cross and drill hole in top, set flush with the ground. The following true bearings were determined:

	° ′
Southeast corner of courthouse (mark)	36 04.6 east of north
Northeast corner of the city hall (brick)	48 31.5 east of south
Left edge of granite pillar at southeast corner of Methodist Episcopal Church	87 45.2 west of north
Northeast corner of school building	44 03.4 west of north
Left edge of entrance to school building, on brick	50 36.0 west of north

NORTH DAKOTA—continued.

Hettinger, Adams County. The station is on the grounds of the State experiment station of the Department of Agriculture, about three-fourths mile northwest of the town. It is in the edge of the main road running back through the fields north of the farm buildings, and near the end of the fourth row of willow bushes, about 55 feet up from the cross road. The station is marked with a bronze station mark set in concrete, flush with the surface of the ground. The following true bearings were determined:

	° ′
Cross on Norwegian Church (mark)	65 48.2 east of south
Spire of Congregational Church	60 46.6 east of south
Spire on cupola of schoolhouse	57 44.7 east of south
Point on railroad water tank	46 24.3 east of south

Auxiliary observations were taken at a point 300 feet due north and also at a point 300 feet from the first auxiliary station and in line with the steeple of the Norwegian Church.

Jamestown, Stutsman County.—The station of 1907 could not be recovered. The station of 1914 is about 10 rods (probably) northeast of the old station. It is on the grounds of the North Side Public School, near the northeast corner. It is in line with the east side of the school building and 83.5 feet north of the northeast corner, 109 feet northeast of the northwest corner, 11 feet south of the row of trees on the north edge of the grounds, 28 feet west of the row of trees on the east side of the grounds, and 105 feet east of the row of willows on the west side. The station is marked by a cement post 8 by 8 by 24 inches, projecting 2 inches above the ground, with a brass magnetic station mark in the top. The following true bearings were determined:

	° ′
Left edge of old main Presbyterian College building (mark)	82 20.3 east of south
Northwest corner of North Side school building	35 40.5 west of south
South corner of B. P. O. E. building	46 13.0 west of south
Left edge of standpipe on hill	11 12.7 east of north
Point of south gable on north college building	84 54.7 east of north

OKLAHOMA.

Apache, Caddo County.—The station is in the northwestern corner of a pasture immediately southwest of the cotton yard, about 1,000 feet south from the town's center, and about 450 feet south from the town water tank. It is about 180 feet from the north fence of the pasture and about 88 feet from the west fence. The station was not marked.

Lindsay, Garvin County.—The station is in the northeastern corner of the city park, about one-half mile southwest from the town's center. It is 120.4 feet southwest from the northeast park fence, 128.6 feet southeast from the northwest park fence, and 62.6 feet west from the northwest corner of the band stand. It is marked by a limestone post 6 by 6 by 33 inches, projecting about 8 inches above the ground, and having a brass magnetic station mark in the top. The following true bearings were determined:

	° ′
Top of town water tank (mark)	27 23.0 east of north
Top of Presbyterian Church steeple	22 55.9 east of north
Base of flagstaff on roof of public schoolhouse	44 06.2 west of north

McAlester, Pittsburg County.—The station of 1905 was reoccupied. It is about 3 miles north of the center of the town on ground owned by the city, and fenced in to protect the watershed and pumping station. It is in the southeastern part of the grounds near a corner of the fence along the southern border where it takes a turn to the north along the property owned by R. B. Coleman. The station is 142 feet from the south fence and 153 feet from the east fence. The station is marked by a limestone post 5½ by 5½ by 30 inches, showing 5 inches above ground and lettered U. S. C. & G. S., 1905. The location of the stone is known to I. C. Shreve, superintendent of waterworks. The following true bearings were determined in 1905 and 1909:

	° ′
Spire on Methodist Church (mark)	7 19.8 east of south
Upper eastern corner of standpipe	19 11.7 east of south
Spire on high school	17 12.1 east of south

Minco, Grady County.—The station is in the southeastern part of the ground surrounding the Christian Church school, about one-half mile northwest from the town's center. It is 86 feet from the fence on the south, 132.7 feet from the fence on the east, and about 250 feet southeast from the southeast corner of the school building. The station is marked by a limestone post 6 by 6 by 30 inches, with a magnetic station marking plate set in the top, which is about 7 inches above the ground. The following true bearings were determined:

	° ′
Top of Methodist Church belfry (mark)	71 58.4 east of south
Top of town water tank	35 48.9 west of south
Upper southwest corner of Christian Church school, under eaves	38 10.3 west of north

OKLAHOMA—continued.

Pauls Valley, Garvin County.—The station of 1905 was reoccupied. It is in what is generally known as negro park, or baseball grounds, about 500 feet northwest of the intersection of the railroad and the levee, about 150 feet northeast of the levee at the nearest point, 106 feet from the center of the road on the northwest, 15 feet from the center of that to the southwest, and 42 feet from a tree to the southeast. The station is marked by a limestone post 6 by 8 by 30 inches, with a brass marker in the top. The following true bearings were determined in 1905 and 1912:

	° ′
Ball on top of town water tank (mark)	60 42.5 west of north
North edge of smokestack on cotton gin	79 33.3 west of north

Stigler, Haskell County.—The station is in the southeast corner of the county fairgrounds, about three-fourths mile northeast from the town's center. It is 95 feet from the southeast fence of the fairgrounds and 129.4 feet from the southwest fence. It is marked by a limestone post, 6 by 6 by 33 inches, projecting 6 inches above the ground, with a magnetic station marking plate set in the top. The following true bearings were determined:

	° ′
Top of First Baptist Church steeple (mark)	83 55.2 west of north
Upper northwest corner of high school, under eaves	86 15.3 west of north
Top of town water tank	12 29.2 east of south

About 490 feet distant due north a cross in the top of a field stone marks the north end of a meridian line. This stone is about 3 by 9 by 15 inches, and projects about one-half inch above the ground. It is 34.4 feet from the northeast fence of the fairgrounds and 240.3 feet from the southeast fence.

Walter, Cotton County.—The station is in the southwestern part of the infield within the town race track, about one-half mile north from the town's center. It is 112.5 feet north from the fence outside the race track, and 152.8 feet east from this same fence, where it makes the turn to the north. The station is marked by a limestone post, 6 by 6 by 28 inches, projecting about 8 inches above the ground, and lettered U. S. C. & G. S., 1914. The following true bearings were determined:

	° ′
Top of town water tank (mark)	21 57.0 west of south
Top of cupola of Mr. Coleman's (the banker) house	6 30.8 east of south
Upper northwest corner of Paschall's grocery store	10 23.7 west of south

About 300 feet to the north, a 2-foot gas pipe, about 1 inch in outside diameter, was driven with its top flush with the ground to mark the north end of a meridian line. The north meridian point is 60.5 feet south from the fence outside the race track and 103 feet east from the same fence.

OREGON.

Corvallis, Benton County.—The station is on the campus of the Oregon Agricultural College, about 175 yards due east from the administration building. It is distant 34.5 feet from the edge of a gravel walk to the southeast, 38 feet from a maple tree 6 inches in diameter at the southern point of a diamond-shaped plot of trees and shrubs, and 280.7 feet from the inner edge of the cement walk along the south side of Monroe Street. The station is marked by a sandstone post, 7 by 7 by 36 inches, set flush with the ground and having a brass magnetic station mark in the top. The following true bearings were determined:

	° ′
Base of flagstaff on public-school building (mark)	75 11.2 east of south
Base of flagstaff on courthouse	82 04.8 east of south
Base of flagstaff on city hall	67 36.6 east of south
Tip of cupola on science hall	57 53.5 west of south
Base of flagstaff on administration building	89 23.8 west of north

Cottage Grove, Lane County.—The station is on the hill just north and a little west from the town. It is a little west of the west line of North H Street where this line is extended over the hill. It is 22.1 feet from an oak tree, 22 inches in diameter, bearing 22° east of north; 15.6 feet from an oak tree, 18 inches in diameter, bearing 70° west of north; 23.8 feet from an oak tree, 24 inches in diameter, bearing 32° west of south; and 67.3 feet from a large fir tree, 4½ feet in diameter, bearing nearly due east. It is also 7.4 feet south of the center of the footpath along the summit of the ridge. The station is marked only by a hardwood stake 18 inches in length and 2 inches square, extending 3 inches above ground. The following true bearings were determined:

	° ′
Spire of Methodist Episcopal Church (mark)	5 23.1 east of south
Spire of Presbyterian Church	21 36.6 east of south
Base of pole on cupola of schoolhouse	9 35.2 east of south
Spire of Catholic Church	0 45.6 west of south

OREGON—continued.

Eugene, Lane County.—The station of 1908 was reoccupied. It is on the eastern part of Skinners Butte, near the north side of the narrow flat top, being about 80 feet from the eastern brow of the butte. The station is marked by a marble post 5 by 5 by 18 inches. A similar stone post is 57.8 feet southwest of the station. Both stones are marked with a cross and the letters U. S. They were set as reference marks for the astronomical station. The following true bearings were determined:

	° ′
Spire of Methodist Episcopal Church	2 52.6 west of south
Spire of Patterson School	35 31.5 east of south
Spire of Baptist Church	16 25.1 east of south
Tip of dome on opera house	2 43.7 east of south

Glendale, Douglas County.—The station is at the extreme south end of Third Street, which is the first street running approximately north and southeast of the Southern Pacific Railroad station. The station is on the shoulder of a hill which blocks the extension of the street and is almost at the edge of the timber. It is nearly in the middle of the street, and is 10½ feet north of a large sawed-off tree stump, 3 feet high and 4 feet across the top. The station is marked only by a hardwood peg, which extends about 1 inch above the ground. The following true bearings were determined:

	° ′
Base of rod on hose-house tower (mark)	27 19.5 east of north
Spire of Glendale Church	55 11.4 east of north
Base of flagstaff on public-school building	60 24.3 east of north

Observations were made also at two auxiliary stations—B, on the ranch of Mr. Riggs, between his house and barn, and C, on the ranch of A. Umphlette, on the south side of Cow Creek, about 40 rods east and a little north of a small dwelling house.

Grants Pass, Josephine County.—The station is toward the southeast corner of the high school campus. It is 87 feet east of the east edge of the driveway leading up to the school building from the south, 108 feet from the inner edge of the walk along the south side of the campus, 107 feet from the fence line on the east side, and 407.4 feet from the southeast corner of the school building. The station is marked by a marble post 9 by 9 by 26 inches, set flush with the ground, and having a brass magnetic station marker set in the top. The following true bearings were determined:

	° ′
Spire of Methodist Episcopal Church (mark)	88 28.7 west of south
Tip of cupola on East Side public school building	44 35.5 west of north
Base of flagstaff on high school building	13 52.3 west of north
First figure "1" in date 1910 on corner stone of high school building	6 35.6 west of north

Hillsboro, Washington County.—The station is near the northeast corner of the grounds of the new high school. It is 80.4 feet from a fence on the north side of a public road along the north side of the grounds, 276.4 feet from the northeast corner of the low addition to the main part of the high school building, used as the heating plant, and 42 feet from the northwest corner of the rail fence inclosing the adjoining lot east of the school grounds. The station is marked by a sandstone post 10 by 10 by 28 inches, having a brass magnetic station mark set in the top and the stone set flush with the ground. The following true bearings were determined:

	° ′
Base of flagstaff on courthouse (mark)	31 04.3 west of south
Spire of Methodist Episcopal Church	10 58.4 west of south
Spire of Baptist Church	7 34.9 west of south
Spire of Congregational Church	12 10.8 east of south
Tip of cupola on ranch barn	84 13.7 east of north

Junction City, Lane County.—The station is on the ranch of C. W. Washburn, about one-half mile southwest of the town's center. It is on pasture land about 150 yards west and a little north of Mr. Washburn's residence. It is on the south side of and about 20 feet from the middle of drainage ditch. It is 76.3 feet from a fence line to the south, 92.5 feet from a fence line to the east, 66.2 feet from a small oak tree 6 inches in diameter bearing 80° west of north, and 79 paces (3-foot) from a group of three large oak trees bearing 80° west of south. The station is marked only by a pine stub 16 inches long, extending 3 inches above the surface. The following true bearings were determined:

	° ′
Tip of belfry on Junction City high school (mark)	43 41.5 east of north
Spire of Methodist Episcopal Church	50 21.3 east of north
Spire of Christian Church	54 42.8 east of north
Base of flagstaff on C. W. Washburn's barn	79 58.8 east of south

As the results at this station appeared abnormal, additional observations were made at a second station (B), about three-fourths of a mile northeast from the first station, on the east side of the Southern Pacific Railway track, and nearly in the middle of Seventh Street, and about midway of the third block east of the railroad.

OREGON—continued.

Pendleton, Umatilla County.—The station of 1910 was no longer suitable for magnetic work, and a new station was established on the grounds of the city waterworks about a quarter of a mile from town, east of the old station. It is about 240 feet north of the foot of the embankment above the reservoir. The station is marked by a bronze magnetic station mark set in the top of a cement block, 2 feet deep and 1 foot in diameter, projecting about 2 inches above the ground. Its location is known to the city engineer. The following true bearings were determined:

	° ′
Block on point of roof of east reservoir	19 34.1 east of south
Flagpole on high school building (mark)	82 36.7 west of south
Smokestack on asylum	84 15.4 west of north
Steeple of First Methodist Episcopal Church	56 01.0 west of north
Clock face on county courthouse	36 04.2 west of north

Observations were made also at the 1910 station on the high school grounds as nearly as could be determined from the changed surroundings.

Portland, Multnomah County.—The station of 1910 was reoccupied. It is on the slope of a hill in the southwestern part of the city park, about 2 miles southwest of the town's center, and nearly due west of the round house between the reservoirs. It is about 500 feet southwest from the edge of a steep bank, which slopes down to the elk and buffalo inclosures, and is about 60 feet west of the most western line of white stakes used to measure annual movement of ground. It is 26 paces west of the fence on the east side of this inclosure and 70 paces south from the fence on the north side. It is marked by a sandstone post 6 by 6 by 14 inches, resting upon a foundation stone about 8 inches thick, with its pyramidal top about 3 inches above the ground. The exact spot is the intersection of the diagonals between opposite corners. The following true bearings were determined:

	° ′
Center of top of tall square brick tower surmounted by a dome (mark)	78 26.1 east of south
Northern of two twin towers of Jewish synagogue	81 59.1 east of south
Church steeple showing between towers of synagogue	81 44.2 east of south
A small black-topped church steeple	51 07.0 east of north
Gilt tip of a small church steeple	49 57.7 east of north

PENNSYLVANIA.

Blossburg, Tioga County.—Observations were made at a point about three-fourths of a mile south of town, near the edge of a bluff in a pasture on the south side of the highway to Arnot, just after crossing an iron bridge. The point was about 50 feet west of the wire fence at the east side of the pasture. The point was not marked.

Coatesville, Chester County.—Observations were made at a point about 1¼ miles northeast of the center of town, in the upper part of a pasture belonging to the country estate of Sharpless Worth. The point is about 120 feet southwest of a watering trough, 185 feet south of the north fence of the pasture, opposite a windmill and two tanks, 105 feet north of a tulip tree 3 feet in diameter, 55 feet west-northwest of a walnut tree 5 inches in diameter, 115 feet east of a tree 12 inches in diameter, and 85 feet southeast of a maple tree 12 inches in diameter. The point is marked by a natural rock reaching about 3 inches above the ground, to which the regular magnetic station mark was attached by neat Portland cement. The following true bearings were determined:

	° ′
North gable of western one of two stone houses on opposite hill	0 05.6 west of south
West gable of Mr. Worth's barn	60 04.6 east of north

Easton, Northampton County.—The station of 1910 was reoccupied. It is in the northwest part of the March athletic field of Lafayette College, 38 feet southeast of the concrete wall surrounding the field, 12 feet northwest of the outer edge of the running track, and 1 foot southwest of the continuation of one of the sides of the baseball diamond. The station is marked by a marble post 6 by 6 by 15 inches, lettered U. S. C. & G. S., and buried with its face flush with the ground. The following true bearings were determined in 1914:

	° ′
Tower of courthouse	23 30.0 west of south
South College	36 44.8 east of south
Northwest gable of fraternity house	65 25.5 east of north

Elizabethville, Dauphin County.—Observations were made at a point about 1¼ miles west of town, in Margerum Park, a small private park or country place belonging to Mr. Margerum. The point is 205 feet east of the northeast corner of a cement tennis court, 175 feet south of a wild cherry tree 30 inches in diameter, 124 feet southeast of the flagpole, 27 feet west of a row of shrubs or small trees, and about 320 feet north of the gate of the park. The point is marked with a 2-foot length of terra-cotta pipe set with its bell end even with the ground and having this end filled

PENNSYLVANIA—continued.

with neat Portland cement, in which the regular magnetic station mark is embedded. The following true bearings were determined:

	° ′
Cupola of barn 700 feet away (mark)	17 49.8 west of south
South gable of 2-story white frame house 1 mile away	11 52.8 west of north
Middle cupola of large red barn 1,500 feet away	64 02.9 east of north
Tower of schoolhouse	86 35.2 east of south

Hamburg, Berks County.—The station of 1910 was reoccupied. It is in the western one of the two circular plots near the center of the Union Cemetery, belonging to the Reformed Lutheran Church, about one-fourth mile from the center of town. The station is 6 feet west of the west edge of the driveway, 40.7 feet west of the southwest corner of the base of the tombstone of Stephen J. Smith, 49.6 feet south of the south face of the base of the tombstone of David Keller, and about 170 feet south of the gate of the cemetery. It is marked by a marble post 6 by 6 by 24 inches, lettered U. S. C. & G. S., set flush with the ground. The following true bearings were determined:

	° ′
South gable of stone farmhouse one-half mile away (mark)	20 37.6 west of north
Cupola of barn 800 feet away	60 48.8 east of north

Harrisburg, Dauphin County.—Observations were made in the southwest part of the public playground in Island Park, near the stations of 1907 and 1910. The mark set in 1907 was buried under sediment deposited during an overflow of the river and could not be found. No new mark was set.

Laporte, Sullivan County.—Observations were made at a point about one-fourth mile north of the center of town in a pasture lot belonging to Mr. McFarlane, lying on the west side of the highway to the railroad station, and just north of a lot containing the ruins of a schoolhouse burned down about 1906. The point is 230 feet west-northwest of the gate to the pasture, 110 feet east of the edge of woods along a creek, and 190 feet south of a maple tree 18 inches in diameter which stands at the corner of the fence to the school lot. The point is marked by a natural outcrop of rock about 3 feet by 3 feet in area, and having a magnetic station mark cemented on to this rock. The following true bearings were determined:

	° ′
Steeple of Episcopal Church (mark)	5 58.1 west of south
South gable of red frame house, one-fourth mile away	61 57.6 east of north
East gable of barn on hillside about 1,500 feet away	49 32.0 east of north

Manheim, Lancaster County.—Observations were made at a point about three-fourths mile northeast of the center of town in a field belonging to Amos H. Shenk, on the south side of the highway, just beyond a small bridge and tollgate. The point was about 170 feet east of the west fence of the field, about 185 feet south of the north fence, and about 200 feet west of a single large tree at the center of the field. The point was not marked.

Oxford, Chester County.—Observations were made in a field about three-eighths of a mile northwest of the center of town, opposite and south of a three-story brick house in a grove. The station was 70 feet south of the gate to the field, opening on the highway, and 350 feet west of the east fence of the field along a minor street or road. The point was not marked.

Pottstown, Montgomery County.—Observations were made about three-fourths mile southwest of the center of town, in the back or new part of Mount Zion Cemetery. The point is 11.2 feet from the east fence line, and about 380 feet from the fence line along the public road, measured parallel to the hedge, 390 feet northeast of a double chestnut tree, 615 feet east of the southerly one of a clump of three chestnut trees, and 330 feet from a row of trees to the north. The point is marked with a marble post 6 by 6 by 21 inches, set with its face 1 inch above the ground, and having the regular magnetic station mark fastened in its top. The following true bearings were determined:

	° ′
Square monument nearest northwest corner of cemetery, one-fourth mile away (mark)	34 45.4 west of south
Front gable of large house 1,000 feet away	44 57.8 west of south
High marble shaft in cemetery about 400 feet away	23 35.7 west of north

Quarryville, Lancaster County.—Observations were made at a point about 1¼ mile east-northeast of town in a hillside pasture belonging to Messrs. Dickinson and Gilbert, on the north side of the highway to Christiana. The point is 105 feet east of the west fence of the pasture at a place where a stone wall stops and is continued by a rail fence, 180 feet east-southeast of a chestnut tree 5 feet in diameter, and 120 feet north of the stone wall along the highway. The point is marked by a natural outcrop of rock about 6 feet by 2 feet in area. It was planned to set the magnetic station marker in this rock, but the owner objected to the marker on account of its providing for a penalty if disturbed. Accordingly a mass of cement was attached to the rock, and the magnetic station mark was pressed against it while wet, thus leaving an inverted impression of it to mark the exact spot. The following true bearings were determined:

	° ′
East gable of barn about 1,000 feet away (mark)	31 34.5 west of south
North cupola on large barn about 1,000 feet away	14 55.4 east of south
West gable of red barn, 1,000 feet away	79 40.2 east of south

PENNSYLVANIA—continued.

Slatington, Lehigh County.—Observations were made at a point about one-fourth mile south of the Lehigh Valley Railroad station and uphill from the station. The point is on ground belonging to Fairview Cemetery, but not yet used for graves. It is on the slope between the present cemetery and town. It is 50 feet west of the road leading into the cemetery, and about 200 feet south and uphill from the ruins of a large brick building destroyed by fire. The point was not marked.

Watsontown, Northumberland County.—Observations were made at a point about one-fourth mile east of the center of town in the cemetery on the hillside. The point is about 200 feet north of the G. A. R. monument, about the center of the roadway, and near where the roadway ends at the edge of a bank. It is just west of the Koons lot and about 75 feet east of an oak tree 30 inches in diameter at the north end of a row of trees. The point is not marked.

Williamsport, Lycoming County.—The old station was found to be no longer suitable for magnetic observations on account of the existence of local magnetic disturbance, and a new station was established about 3 miles east of the center of town, on the north side of the highway to Montoursville. It is on the grounds of the country club, about 40 feet south of the edge of a piece of woods near the center of the golf grounds. It is about 600 feet northeast of the gate of the grounds, 220 feet north-northwest of an elm tree 4 feet in diameter, 70 feet northwest of a hydrant located in a hollow, and 220 feet east-southeast of the southeast corner of the clubhouse. The station is marked by a marble post 6 by 6 by 24 inches, having the brass magnetic station mark set in its top, and buried with its top about 2 inches above the ground. The following true bearings were determined:

	°	′	
Pole on eastern cupola of barn 1,000 feet away (mark)	56	32.3	west of south
Water tank in Williamsport	81	25.0	west of south
Steeple of church	86	22.6	west of south
Cupola of barn about one-half mile away	33	07.2	west of south
Other cupola of barn, 1,000 feet away	57	25.0	west of south

Womelsdorf, Berks County.—Observations were made at a point about one-half mile southeast of the center of town, in a field on the east side of the main highway to the Philadelphia & Reading Railway station. The point is about 250 feet south of a large stone barn, and 50 feet southeast of a wild cherry tree 15 inches in diameter, standing at a turn in the road. It is about 10 feet west of the bank of a small stream. The point was not marked.

SOUTH DAKOTA.

Aberdeen, Brown County.—The station of 1907 could not be recovered, and a new station was established in the cemetery about 1 mile south and 1 mile west of the town's center. It is 238 feet west of the east cemetery fence and 405 feet north of the south fence, exactly in line with the outer edge of the cement curbing around the Mason's triangle and 2.6 feet from the north corner of this triangle. The station is marked by a Bedford limestone post 6 by 6 by 18 inches, lettered U. S. with drill hole, which projects 4 inches above the ground. The following true bearings were determined:

	°	′	
Statue on courthouse tower dome (mark)	37	17.0	east of north
Methodist Episcopal Church spire	43	48.6	east of north
Center of cement chimney at normal	66	30.6	east of north
Northwest corner of well house at cemetery	59	45.0	west of south
Southwest corner of capstone of G. A. R. monument just below statue	44	50.7	west of north

Alexandria, Hanson County.—The station is on the county fairgrounds just south of town. It is between Floral Hall and the race track, 128 feet south of the southwest corner of Floral Hall, and 179 feet southwest of the southeast corner. The west side produced southward passes 12 feet east of the station. It is also 205 feet east of the fence on the west and 158 feet northwest of the fence around the track. The station is marked by a Sioux quartzite post 6 by 8 by 24 inches, with a cross marked on top, and set flush with the ground. The following true bearings were determined:

	°	′	
Catholic Church spire (mark)	12	03.1	west of north
West gable of distant farmhouse	77	21.6	east of south
Weather vane on cupola of east barn southwest of fairgrounds	16	56.1	west of south
East gable of residence northwest of fairgrounds	56	35.9	west of north
Southeast corner of Floral Hall	41	14.4	east of north

Castlewood, Hamlin County.—The station is near the center of the high-school block just northeast of the town's center. It is 132.5 feet northeast of the northeast corner of the high-school building, 160 feet northeast of the southeast corner, 179 feet north of the inner row of trees south of the building, 242 feet west of the fence on the east side of the grounds, and 29 feet north of the line of the north side of the high school. It is marked by a Bedford limestone post 6 by 6 by 24 inches, set flush with the ground, with a brass plate in top. The following true bearings were determined:

	°	′	
Spire on city-hall cupola (mark)	48	23.6	west of south
Right edge of high-school building	81	03.6	west of south
Lutheran Church spire	59	15.9	west of north
West gable of a house east of high school	81	41.6	east of south
Apex of high-school cupola	68	07.4	west of south

SOUTH DAKOTA—continued.

Clear Lake, Deuel County.—The station is on the county fairgrounds, one-fourth of a mile northeast of the town's center. It is between the main exhibition hall and agricultural hall and also between the race track and poultry building. It is 54.5 feet north of the northwest corner of the main building, 63.5 feet northwest of the northeast corner, 48.5 feet south of the southwest corner of the agricultural building, 62 feet southwest of the southeast corner, 77.4 feet west of the race-track fence, and 139 feet east of the west fairgrounds fence. The station is marked by a Bedford limestone post 6 by 6 by 18 inches, projecting one-half inch above the ground, and having a brass plate in the top. The following true bearings were determined:

	°	′	
Apex of railroad water tank (mark)	85	03.0	west of south
Northwest corner of a farmhouse one-half mile east of fairgrounds	70	27.4	east of north
West gable of barn at above farm	73	28.2	east of north
North gable of grain elevator in Clear Lake	54	29.7	west of south
East gable of large barn in northwest part of town	83	52.8	west of north

Colton, Minnehaha County.—The station is in the city park, one-fourth of a mile west of the village center. It is near the southwest corner of the park, 44 feet east of a fence corner, 98 feet north of the south fence, 41.5 feet south of a large cottonwood tree, 30 feet southwest of the road, and 42.5 feet southwest of a large tree at the corner of the grove. The station is not marked.

Humboldt, Minnehaha County.—The station is on the high-school grounds, one-fourth mile northeast of the town's center. It is 51.5 feet from the northwest corner of the building, 57.5 feet northwest of the northeast corner of the building, 29.5 feet south of the north fence, and 60.5 feet east of the west fence. The station is not marked. The following true bearings were determined:

	°	′	
West gable of house on hill (mark)	77	46.7	east of south
North gable of east grain elevator	42	44.0	west of south
East gable of south cupola of large barn west of high school	77	51.0	west of south
Weather vane on barn, 1 mile distant	10	19.7	west of north
South gable of house along road	2	22.0	east of north

Ipswich, Edmunds County.—The station is near the northwest corner of the county courthouse yard, near the town's center. It is 89 feet northwest of the northwest corner of the courthouse, 42 feet west of the west side produced northward, 67 feet east of the walk on the west side of the street west of the courthouse, and 7 feet south of the north row of trees. It is marked by a Bedford limestone post 6 by 6 by 18 inches, projecting 3 inches above the ground, and having a brass magnetic station mark in the top. The following true bearings were determined:

	°	′	
Apex of city water tank (mark)	57	24.3	west of south
Church spire in north part of town	79	36.1	west of north
South gable of house north of courthouse yard	6	59.6	east of north
Northwest corner of a brick store	53	36.7	west of south

Leola, McPherson County.—The station is near the southeast corner of the high-school grounds, about one-eighth mile southeast of the town's center. It is 48.2 feet north of the south fence, 46.5 feet west of the east fence, 27.2 feet north of the inner row of trees on the south, 16.5 feet west of the inner row of trees on the east, 155 feet southeast of the southeast corner of the high school; almost in line with the northeast corner of the high-school building and the left edge of the water tower. The station is marked by a Bedford limestone post 6 by 6 by 18 inches, projecting 3 inches above the ground, and having a brass magnetic station mark in the top. The following true bearings were determined:

	°	′	
Ball at apex of city water tower (mark)	18	42.6	west of north
Northeast corner of high school, just under eaves	19	12.4	west of north
Southwest corner of high school, just under eaves	39	08.4	west of north
Ball on church spire in southwest part of town	62	15.4	west of north
Northwest corner of a house southeast of high school	29	01.1	east of south

McIntosh, Corson County.—The station is about a quarter of a mile northeast from the courthouse on land owned by the Chicago, Milwaukee & St. Paul Railway. It is south of the baseball field, about 85 feet southwest of the back stop, about 80 feet south-southeast of the bleachers, and 100 feet from the road. The station is marked by a bronze station marker set in a cement post, about 10 by 10 inches, and projecting 6 inches above the ground. The following true bearings were determined:

	°	′	
White milepost beside railroad track	72	20.9	east of south
Pinnacle on roof of railway water tank	33	07.2	west of south
Upper gable on railway coal elevator	44	10.0	west of south
Ball on roof of city water tank (mark)	76	27.3	west of south

SOUTH DAKOTA—continued.

A small brass plug set in cement, placed 431.3 feet due north of the magnetic station, marks the true meridian. Two auxiliary stations were occupied, one about 400 feet from the principal station in the direction of the city water tank and the other 397 feet due north of the principal station.

Milbank, Grant County.—The station is near the northeast corner of the high-school grounds, about one-fourth of a mile east of the town's center. It is 92 feet northeast of the northeast corner of the school building, 53.5 feet east of the east side produced northward, 27 feet south of the cement walk on the north, 55 feet west of the edge of the cement walk on the east, and 63.1 feet southwest of the intersection of these two walks. The station is marked by a Bedford limestone post 6 by 6 by 18 inches, projecting 2 inches above the ground, and having a brass plate in the top. The following true bearings were determined:

	° ′	
Southeast corner of high-school building (on dark bricks)	19 54.6	west of south
Northwest corner of high-school building (on dark bricks)	65 04.4	west of south
Southeast corner of Congregational Church	76 26.6	west of north
Northwest corner of foundation of Mr. Martin's house	87 59.9	east of south

Miller, Hand County.—The station is on the fairgrounds, one-half mile east of town. It is just east of the grand stand, between the road and track. It is 41 feet east of the southeast corner of the grand stand, 44 feet from the northeast corner, 9 feet north of a picket fence around the track, 265 feet south of the north fairground fence, 214 feet southwest of the southwest corner of Erickson's barn. The station is marked by a cement post 8 by 8 by 14 inches, with a brass plate in the top, set flush with the ground. The following true bearings were determined:

	° ′	
Chimney on house 2 miles to south (mark)	0 15.6	east of south
Apex of Congregational Church cupola	74 23.4	west of south
North gable of Sexaure's elevator in Miller	81 52.8	west of south
East gable of house northwest of fairgrounds	45 51.2	west of north
North edge of grain elevator in St. Lawrence	83 40.2	east of south

Olivet, Hutchinson County.—The station is near the southwest corner of the courthouse yard near the town's center. It is 28.4 feet from the cement walk on the south, 36 feet from the cement walk on the west, 40.4 feet from the corner stone near the intersection of these two walks, 74 feet from the southwest corner of the main part of the courthouse. The station is marked by a cement post 6 by 6 by 24 inches, with a brass plate in the top. The following true bearings were determined:

	° ′	
Evangelical Church spire (mark)	27 52.2	east of south
Left edge chimney on Shoemaker's house	73 59.8	west of south
Left edge of high-school building	16 40.4	east of north
Right edge of high-school building	24 56.4	east of north
Right edge of Schlicht's house	89 18.8	east of north

A similar post, set 259.4 feet to the north, marks the meridian line. This post is in line with the north side of the high-school building and 77.8 feet west of the northwest corner of its foundation.

Pierre, Hughes County.—The station of 1906 was reoccupied. It is in the Riverside Park, east of the central part of the city, about 115 feet east of the drive entering the park at the northwest corner and 82.2 feet south of the fence bordering the highway on the north. It is near the edge of the bank bordering the timbered tract along the lower bottom. The station is marked by a Bedford limestone post 5 by 7 by 27 inches, projecting 2 inches above the surface of the ground and lettered U. S. C. & G. S., 1906. The following true bearings were determined:

	° ′	
Cross on Catholic Church spire (mark)	6 05.4	west of north
Spire on courthouse tower	19 03.6	west of north
Base of spire on hospital tower	77 24.9	east of south
Ball on apex of capitol dome	2 49.4	east of north
Base of flagpole on school building just east of park	58 55.9	east of north

Sisseton, Roberts County.—The station is in the southeast corner of the courthouse yard near the town's center. It is 66 feet north of the edge of the cement walk to the south, 43 feet west from the edge of the cement walk on the east, 78 feet northwest of the intersection of these two walks, 56 feet east of the east side of the courthouse produced southward. The station is marked by a Bedford limestone post 6 by 6 by 18 inches, with a brass plate in the top, and set flush with the ground. The following true bearings were determined:

	° ′	
Southwest corner of high school, on dark bricks (mark)	39 19.9	east of south
Ball on Methodist Episcopal Church spire	0 08.6	west of south
Ball on Presbyterian Church spire	53 26.8	west of south
Northeast corner of courthouse, on brick	27 45.9	west of north
Southeast corner of barn east of courthouse	75 07.0	east of north

SOUTH DAKOTA—continued

Toronto, Deuel County.—The station is near the northeast corner of the high-school grounds, one-sixth of a mile southeast of town's center. It is 130 feet northeast of the northeast corner of the high-school building, 32.5 feet west of the inner row of trees on the east side, 11 feet south of the inner row of trees on the north side, and 33.5 feet from the inner corner tree. The north side of the high school produced eastward passes 64 feet south of the station. The station is marked by a Bedford limestone post 6 by 6 by 18 inches, with brass plate in the top, which projects 1 inch above the ground. The following true bearings were determined:

	°	′	
Methodist Episcopal Church spire (mark)	23	38.5	west of north
South gable of barn one-half mile away	71	14.3	east of north
Apex of round metal granary near southeast corner of high-school grounds	6	18.8	east of south
Southeast corner of house just south of high school	27	19.6	west of south
Northwest corner of high-school foundation	65	22.8	west of south

Watertown, Codington County.—The station of 1906 could not be recovered, and a new station was established in the courthouse yard, 81.7 feet east of the northeast corner of the courthouse, 106.9 feet south of the north fence, 73.5 feet west of the east fence, 24.4 feet southeast of the cement walk, and 249.6 feet north of a red sandstone post at the southeast corner of the courthouse yard. This post is lettered U. S. C. & G. S., with a cross in center, and marks the magnetic station of 1900. The cement walk contains the stone and apparently has never been moved. The station of 1914 is marked by a Bedford limestone post 6 by 6 by 18 inches, with a brass plate in the top, set flush with the ground. The following true bearings were determined:

	°	′	
Southeast corner of Christian Science Church, 2 feet above ground (mark)	64	29.6	east of north
Southwest corner of city library	17	47.6	east of north
Southeast corner of courthouse annex about 10 feet above ground, on white brick	42	03.9	west of south
Stone post at southeast corner of yard	0	02.2	west of south

TENNESSEE.

Athens, McMinn County.—The station of 1903 was reoccupied. It is on a hill north of the town, about 600 feet northeast of the railroad station and about 800 feet south of the standpipe, 118 feet southeast of the lower road from Athens to Sweetwater, and 55.3 feet and 50.6 feet, respectively, from the northeast and southeast corners of the building of the Athens Collegiate and Industrial Institute, a colored institution. The station is marked by a stone 3 by 8 by 16 inches, lettered U. S. C. & G. S., 1903, on top, in the center of which there is a drill hole. The following true bearings were determined in 1903:

	°	′	
Spire on Baptist Church (mark)	35	06.3	east of south
Cupola of the Bandfield Home	28	05.6	east of south

Knoxville, Knox County.—The station of 1907 was reoccupied. It is on the University of Tennessee experiment farm, about 1½ miles from the courthouse in a southwesterly direction. It is about 3 feet from the eastern edge of the lawn east of the dwelling house, 42.7 feet from the northeast corner of the house, and 62.7 feet from the east post of the south piazza. It is marked by a square marble post, projecting about 2 inches above the lawn and lettered U. S. C. S. The following true bearings were determined in 1907:

	°	′	
Spire on Daniel Briscoe's residence (mark)	44	47.5	east of north
Cupola of public school	75	32.6	east of north
Southeast corner of dormitory	64	24.8	west of south
Center of south gable of gray house	18	19.5	west of north
Center of east chimney of same house	17	53.4	west of north

Memphis, Shelby County.—The station of 1908 was reoccupied. As the old station was found to be unsuitable for future observations, a new station was established in the southeastern part of Overton Park, about 185 feet north of a line between the seventh and eighth golf hole, and about 1½ miles northeast from the town's center. It is 155.3 feet northeast from the northeast corner of the nearest rustic bridge, and 203.5 feet northeast from the northeast corner of a rustic bridge constructed from a single log. The station is marked by a limestone post 6 by 6 by 30 inches, projecting about 6 inches above the ground. The following true bearing was determined:

	°	′	
Top of steeple of Baptist Church on Union Avenue (mark)	8	14.6	east of south

TEXAS.

Abilene, Taylor County.—The station is in the fair grounds, about 2 miles southwest of the center of the town. It is in the southern section of the grounds, 19 feet north of the inside fence of the race track and between the seventeenth and eighteenth fence posts, counting west from the three-eighth-mile post. It is also about 40 feet east of the east side of the grand stand extended. The mark is a cement post 8 by 8 by 27 inches, with a brass marker set in the top, projecting 2 inches above the surface of the ground. The following true bearings were determined:

	° ′	
Flagpole socket at north gable of poultry building (mark)	30 16.2	east of north
East edge of exhibition hall	37 47.0	east of north
West edge of residence 1 mile away	41 51.3	east of north
West edge of town water tank	56 21.6	east of north
Northeast edge of grand stand	2 53.1	west of north

A similar post marks the north end of a meridian line about 525 feet long. This post is set 7 feet south of the inner fence of the track, near the grand stand.

Amarillo, Potter County.—The station of 1910 was reoccupied. It is in the cemetery southeast of town, in the middle of the third driveway running east and west, counting from the north side of the cemetery, and 84.5 feet east of the center of the drive running south from the gateway. It is also 43.5 feet east and a little south of the base of the Keeton monument. Station is marked by a marble post 6 by 6 by 18 inches, lettered U. S. C. & G. S., and projecting 1 inch above the ground. The following true bearings were determined:

	° ′	
Steeple of Episcopal Church (mark)	4 13.0	west of north
Cupola of high-school building	17 45.2	west of north
Gable end of cupola of Amarillo Mill & Elevator Co	4 48.5	east of north
Steeple of Glenwood Christian Church	42 08.7	east of north
Base of flag staff on pavilion in fair grounds	66 28.9	east of north

Baird, Callahan County. -The station is in the northeast corner of the public-school grounds, about one-half mile northwest of the center of the town. It is on the north side of the baseball grounds, 26 feet from a lone tree on the northwest, 84 feet from the west corner of the baseball grand stand, about 42 feet from first base and about 225 feet from the northeast edge of the school building. The mark is a cement post 8 by 8 by 8 inches, with a brass marker in the top, projecting about 1 inch above ground. The following true bearings were determined:

	° ′	
Baptist Church spire (mark)	5 06.2	west of south
Lower southeast edge of school	30 26.4	west of south
East gable of residence ¾ mile away	83 16.6	west of south
West gable of residence 1 mile away	72 59.9	east of north
South gable of residence 75 yards east of church	1 18.4	east of south

Barstow, Ward County.—The station is in the south section of the school grounds in the west section of the town. It is 10.2 feet from the wood fence on the south and 67.2 feet east from the east corner of the frame school building. The mark is a concrete post 8 by 8 by 30 inches, with a brass magnetic station mark in the top, projecting about 1 inch above the level of the ground. The following true bearings were determined:

	° ′	
North gable of house (mark)	14 12.0	west of south
Lower southwest corner of brick schoolhouse	58 27.4	west of north
West gable of residence 500 feet away	13 26.6	west of north
Baptist Church spire	68 07.7	east of north
North gable of residence 200 yards away	47 05.1	east of south

A similar stone marks the north end of a meridian line 277 feet long. This stone sets in the extreme northeast corner of the ground, about 20 feet from the east fence and 33 feet from the north fence.

Eastland, Eastland County.—The station is in the cemetery about one-half mile southeast of the center of the town. It is about 300 feet due east of the entrance, 58.8 feet due south of the southwest post of the fence around the lot marked "Whittington," and 41.6 feet from a tree to the southwest. The exact spot is marked by a cement post 8 by 8 by 27 inches, with a brass marker set in the top, projecting about 1 inch above the ground. The following true bearings were determined:

	° ′	
South gable of residence south of cotton gin (mark)	26 37.1	west of north
Monument marked "Scott"	4 17.5	west of south
East gable of residence one-half mile away	74 21.5	west of south
East gable of public school	72 59.2	west of north
Northeast corner of courthouse	57 17.2	west of north

TEXAS—continued.

The north end of a meridian line 258.2 feet long is marked by a piece of 2-inch pipe, set 2 feet in the ground and projecting 1 inch above. The exact spot is the center of a 2-inch cap having a square head.

El Paso, El Paso County.—The station of 1910 was reoccupied. It is in the southern part of the parade ground at Fort Bliss, about 5½ miles northeast of the town's center. It is 334 feet west of the northwest corner of the fence surrounding the old hospital, 431 feet southwest from the northwest corner of the new hospital, 79 paces north of a row of trees along the south border of the parade ground, and 20 paces northwest of the center of a road running northeast and southwest across the parade ground. The station is marked by a limestone post 6 by 6 by 30 inches, projecting about 5 inches above ground and lettered U. S. C. & G. S., 1910. The following true bearings were determined:

	°	′	
Rod at top of bandstand on parade ground (mark)	7	12.7	west of north
West gable on headquarters	9	00.9	east of north
Top of water tower back of headquarters	17	22.4	east of north
Tip of northeast tower of pumping station	9	18.3	east of south
Top of southwest tower of pumping station	7	28.8	east of south

Groesbeck, Limestone County.—The station of 1908 was reoccupied as nearly as could be determined.

The old station was found to be no longer suitable for magnetic observations, and a new station was established on the west part of the school grounds. The station is on a line with the edge of a cement walk running from the southwest corner of the schoolhouse to an outbuilding. It is distant 333.8 feet from this southwest corner of the building, 118 feet and 68 feet from the inner edge of the cement sidewalk along the south and west lines of the grounds, respectively. The station is marked by a brass magnetic station mark set in cement in the large end of a 4-inch sewer tile, 24 inches long. This tile is set with the top level with the surface of the ground and is embedded in cement to a depth of 10 inches around the top. The following true bearings were determined:

	°	′	
Tower of courthouse (mark)	31	56.3	east of south
Cupola on Mr. Ellis's resdence	17	36.8	west of north
Base of cross on Methodist Church	40	31.1	east of south

A second sewer tile filled with cement was set 473.8 feet due south from the magnetic station to mark a meridian line.

Lufkin, Angelina County.—The station of 1902 was reoccupied as near as could be determined. It is in the northwestern corner of the grounds surrounding the primary public school, about one-fourth mile northeast from the town's center. It is 81 feet southeast from the city monument (covered with an iron cap) at the intersection of First Street and Howe Avenue, and 246.9 feet northwest from a standard city monument covered with an iron cap in the northeast corner of the school grounds. It is about 32½ feet from the line of the north fence of the school grounds and 34½ feet from the line of the west fence. It is marked by a cement post 24 inches long, 4 by 4 inches at the top, and 8 by 8 inches at the bottom, with a magnetic station marking plate set in the top which is flush with the ground. The following true bearings were determined:

	°	′	
Top of cupola of C. M. McConnico's house (mark)	66	41.5	west of south
Nail in a standard city monument covered with an iron cap in the northeast corner of the school grounds	75	03.0	east of south

At the request of McCarthy & Sons a meridian line about 370 feet long was established near the center of town. The north end is near the southwest corner of Martin's shop, near the intersection of Angelina Avenue with the north side of the city square. The south end is near the northeast corner of Ellis's grocery store, near the southeast corner of the city square. The line is marked by two standard city monuments with their tops about 8 inches below the surface.

McKinney, Collin County.—The station of 1902 was reoccupied. It is near the southeast corner of the public-school grounds, which comprise a lot of some 6 to 7 acres in the western part of town. Distance of the station from the south fence is 86.7 feet; from east fence it is 96.3 feet. The schoolhouse is over 300 feet from the station. The station is marked by a marble monument 33 inches long, 6 by 6 inches on top, sunk into the ground so as to project about 3 inches, and lettered on top U. S. C. & G. S., 1902. The following true bearings were determined in 1902:

	°	′	
Spire of South Presbyterian Church (mark)	50	25.1	east of north
Rod on cupola of Mr. Jesse Shain's house	60	10.6	east of north
Apex of cupola on northeast corner of Mr. Largent's house	61	13.2	west of north

Marlin, Falls County.—The station is in the northern part of the county fairgrounds, about 1 mile southeast from the town's center, and about 270 feet northeast from the grand stand. It is 84.5 feet northwest from the fence surrounding the race track and 191.2 feet northeast from the southeast corner of the main exhibition building. The

TEXAS—continued.

station is marked by a limestone post 5 by 7 by 26 inches, projecting about 4 inches above the ground, and having a brass magnetic station mark in the top. The following true bearings were determined:

	°	′	
Top of town water tank (mark)	80	00.2	west of north
Top of Garden & Holloway's water tank	76	07.3	west of north
Center of top of courthouse cupola	73	13.9	west of north
Base of flagstaff on judges' stand	28	43.4	west of south

Monahans, Ward County.—The station is on the lot southwest of the public school, 165 feet from the southwest corner of the school building, and not more than 300 yards east from the center of the town. It is about 33 feet from the nearest point of the knoll to the south, 45 feet from that to the southwest, and 70 feet from that to the northwest. A concrete post 8 by 8 by 30 inches, projecting 2 inches above the ground, and having a brass marker in the top, marks the station. The following true bearings were determined:

	°	′	
South gable of house one-fourth mile away (mark)	24	59.4	west of north
Northwest edge of schoolhouse	25	32.1	east of north
North gable of house	74	45.8	west of south

Odessa, Ector County.—The station of 1905 was reoccupied. It is in the northeast corner of the grounds surrounding the county courthouse, about in the center of the town. It is 60 feet from the fence to the north, 61.7 feet from the fence to the east, and 138.8 feet northeast of the northeast corner of the courthouse. The station is marked by a cement post 7 inches square and 27 inches long, set with a brass magnetic station mark in the top, and projecting about 2 inches above the surface of the ground. The following true bearings were determined in 1914 from the meridian mark on the courthouse steps:

	°	′	
Spire of church	88	50.6	west of south
South gable of church	52	24.5	west of north
West gable of house 200 yards away	14	03.7	east of north
West gable of cotton gin	89	22.9	east of north

Rusk, Cherokee County.—The station is in the southeastern part of the inclosed field containing the water standpipe of the penitentiary, about 600 feet southwest from the penitentiary buildings, and about 1 mile northwest from the town's center. It is 162 feet from the south fence, and 184.3 feet from the east fence. It is marked by a limestone post 5 by 7 by 26 inches, with a magnetic station marking plate set in the top, which is about 4 inches above the ground. The following true bearings were determined:

	°	′	
South gable of main penitentiary building (mark)	53	37.5	east of north
Cupola of Rusk Academy	23	33.8	east of south
Top of southwest guardhouse on wall of penitentiary	24	33.8	east of north
Top of southeast guardhouse on wall of penitentiary	55	23.6	east of north

Stanton, Martin County.—The station is in the northeast corner of the public-school grounds about one-half mile west of the center of the town. It is 22.2 feet southeast of a telegraph pole, 73.1 feet from a wood fence across the road on the east, and 102.1 feet from the southeast corner of the fence across the road on the north. The mark is a cement post 8 by 8 by 30 inches, with a brass marker set in the top, projecting about 4 inches above the ground. The following true bearings were determined:

	°	′	
North gable of barn three-fourths mile south of station (mark)	21	08.9	west of south
Northwest edge of school building (brick), 10 feet above the ground	51	49.8	west of south
South gable of house three-fourths mile away	14	48.8	east of north
Courthouse spire	60	46.7	east of north
Railroad water tank (lower tank)	87	11.2	east of south

Wichita Falls, Wichita County.—The magnetic station was established in the cemetery, about a mile west of the town. It is just north of the second of the main cross drives, and in the middle of the fourth 10-foot driveway east of the entrance driveway. It is 32.5 feet from the middle of the cross driveway and 5.5 feet from the northeast corner of the Fleming lot. The station is marked by a limestone post 5 by 7 by 35 inches, with a brass magnetic station mark set in the top. The top of the stone is 2 inches above the surface. The following true bearings were determined:

	°	′	
Top of tower of building of Academy of Mary Immaculate (mark)	42	27.5	east of south
Top of city water tower	66	58.6	east of south
Point of cupola on St. James Hotel (right hand)	77	26.9	east of north
Point of cupola on St. James Hotel (left hand)	77	23.6	east of north
Point of cone-shaped tower on dwelling house to the south	2	55.6	east of south

A second stone, 5 by 7 by 36 inches and projecting 6 inches above the ground, was set 610.4 feet due south of the magnetic station, marking a meridian line. The stone has a cross cut in the top, marking the exact spot, and is lettered U. S. It is about 2 feet inside the south fence and 30 feet east of the entrance to the cemetery.

VERMONT.

Barnet, Caledonia County.—The station lies in the center of a square field about two-thirds of a mile north of the railroad station. The lot belongs to Mr. Johnson and lies directly across the road from his residence. A small stream runs by, about 100 feet west. The station was not marked.

Bethel, Windsor County.—The station is about two-thirds of a mile southeast of the center of the town, in Graham's field or the baseball grounds. It is in the north end of the field about 300 feet back from the main road. It is about 28 feet from the center of a rough wagon road passing it on the north, and 115 feet east of a prominent tree near the wagon road. Home plate is about 400 feet south. The station is marked by a granite post 8 by 8 by 30 inches with a bronze magnetic station mark in the top, projecting about 1 inch above the ground. The following true bearings were determined:

	° ′	
West corner of bench on baseball grounds (mark)	14 21.2	west of south
West gable of Graham's barn	17 57.0	east of north
West gable of Savage's residence	64 38.0	east of north

Burlington, Chittenden County.—The station of 1898 was reoccupied. It is the south end of the meridian line on the campus of the University of Vermont, in the rear of the buildings. It is marked by a granite post. The north stone is 719.3 feet distant and projects about 6 inches above the ground. The following true bearings were determined in 1910:

	° ′	
Rod of cupola on college barn	35 33.7	east of south
Northeast corner of granite base of Williams Science Hall	52 15.1	west of north

Island Pond, Essex County.—The station is about 1 mile south of the center of the town in the southern part of the new cemetery. It is about 100 feet southeast of the cemetery gate on the main road. The nearest point of the fence is 65 feet from the station. The stone is set on the east corner of the intersection of two pathways, south of a granite monument marked "Stott" about 30 feet. It is also about 50 feet from the edge of the terrace on the east. The station is marked by a concrete post 8 by 8 by 36 inches, projecting 4 inches above the ground, and having a brass magnetic station mark in its top. The following true bearings were determined:

	° ′	
Catholic Church spire (mark)	8 10.7	west of north
Baptist Church spire	15 37.9	west of north
South gable of barn one-half mile away	36 31.8	west of north
Upper west corner of monument marked "Bishop"	57 19.7	east of north
North gable of barn one-half mile away	45 03.6	east of south

The north end of a 425-foot meridian line is marked by a similar stone on the south corner of a lot marked "Elliott."

Ludlow, Windsor County.—The station is on the grounds of the Odd Fellows Home which is on a hill about one-third of a mile northeast of the center of the town. It is about 5 feet north from the edge of the wagon road leading to the building and about 200 feet from the northwest corner of the building. The station is marked by a granite post 6 by 6 by 30 inches, projecting about 6 inches above the ground, and having a brass magnetic station mark in its top. The following true bearings were determined:

	° ′	
Spire of Methodist Church (mark)	15 32.3	east of south
Spire on cupola of schoolhouse	2 43.5	west of south
North gable of residence on hill one-half mile away	23 39.4	west of south

A similar post marks the north end of a meridian line about 400 feet long. This stone sets about 2 feet from the south side of the road on the north edge of the field.

Roxbury, Washington County.—The station is in the east end of the town, about 300 yards east of the railroad station. It is on the boundary line between the Richardson and Howe pasture lands and is about midway between the northeast edge of Howe's barn and a large elm about 200 yards east. The station is marked by a granite post 8 by 8 by 30 inches, projecting about 2 inches above the ground, and having a brass magnetic station marker in the top. The following true bearings were determined:

	° ′	
North gable of Mrs. St. Lawrence's boarding house (mark)	28 06.7	west of south
Railroad water tank	70 24.2	west of north
Cupola on Warner's barn	42 31.8	west of north
Spire of old abandoned church	18 33.5	west of north
Spire of Congregational Church	4 56.4	west of north

VERMONT—continued.

St. Johnsbury, Caledonia County.—The station of 1905 was reoccupied. It is in a pasture belonging to the E. & T. Fairbanks Co., on a sand hill south of the village and immediately south of Mr. Stevenson's house and yard. The finial of a small tower on Mr. Fairbanks's house and the spire of St. Aloysius Church are in range with the station. To the corner of the fence around Mr. Stevenson's yard is 145 feet, bearing 8° 51′ east of north. The station is marked by a marble post 5 by 5 by 36 inches, projecting 4 inches above ground and lettered U. S. C. & G. S., 1905. The following true bearings were determined in 1910:

	° ′
Cupola of barn 1 mile away	45 51.2 west of north
West gable of house 1½ miles away	26 45.6 east of north
Finial of tower on house (Gouthier's) across river	36 05.5 east of north
St. Aloysius Church spire	5 01.3 east of north

South Londonderry, Windham County.—The station is on a piece of pasture land, owned by Mr. Tyler, about one-fourth mile northeast of town. It is back of the Methodist parsonage about 300 feet from the main road, 13.8 feet from the center of the wagon road on the southwest, 28.0 feet from the center of the footpath northeast, 46.3 feet from the center of the nearest of three wells west of the station, 73.0 feet from the stone well west of station, and about 35 feet southeast of two small pines on either side of the wagon road entering the field. The station is marked by a concrete post 8 by 8 by 27 inches, with a brass magnetic station marker in the top, projecting about 3 inches above the ground. The following true bearings were determined:

	° ′
Hall's barn, north gable (mark)	4 55.3 east of south
North gable of Howe's residence	4 41.2 west of south
North gable of Howard's residence on hill	38 34.1 west of south
Pinnacle of tower on town hall	67 01.3 west of south
South gable of Methodist parsonage (upper point)	75 31.2 west of south

Vergennes, Addison County.—The station is in the southwest section of the old fairgrounds, about one-fourth mile east of the center of the town. It is 49.6 feet from the fence on the west, 100.5 feet from the fence on the south, and 226 feet from a lone tree southeast, near the turnpike. The station is marked by a granite block 14 by 8 by 22 inches, set flush with the surface of the ground and having a brass marker in the top. The following true bearings were determined:

	° ′
North gable of house 300 yards away	22 36.3 east of south
Catholic Church spire	24 41.0 west of south
East gable of Norton's Hotel	80 44.5 west of south
Weather vane on Mr. Ryan's barn	73 58.1 west of north
Water tank at railroad station	1 35.4 west of north

Waterbury, Washington County.—The station is on the grounds of the Vermont State Asylum, about 300 feet south of the repair shop and in the rear of the baseball ground. It is 52.5 feet from the fence on the south, 52.9 feet from the nearest of three trees northeast of it and 124.6 feet from the nearest post of the summer shed northwest of it. A granite post 8 by 8 by 28 inches, projecting 3 inches above the ground, and having a brass magnetic station marker in its top, marks the exact spot. The following true bearings were determined:

	° ′
North gable of farmhouse one-fourth mile away (mark)	2 53.0 west of south
Cupola on barn 250 yards away	85 23.4 west of north
Methodist Church spire	13 58.6 west of north
Southeast corner of machine and wood shop on grounds	20 19.9 east of north
Weather vane on asylum barn	87 39.8 east of south

WASHINGTON.

Chehalis, Lewis County.—The station is located about 2 miles east of the city hall in the grounds of the Masonic cemetery, about 500 feet north of the entrance. It is in a small lot which has been reserved for park purposes, 25 feet northwest of the northwest corner of the Waldron monument, and 39 feet northeast of the northeast corner of the James M. Corp monument. The station is marked by a cement block, 2.2 feet long and 1 foot in diameter, projecting 2 inches above ground, and having the bronze magnetic station mark in the center of the top. The following true bearings were determined:

	° ′
Gable of green-roofed bungalow	46 30.0 east of south
Gable of barn near road (mark)	1 48.4 west of south
Top of stone monument in lot surrounded by hedge	31 27.9 west of south
Erect water pipe in windmill (lower part)	41 33.8 west of south

WASHINGTON—continued.

Dayton, Columbia County.—The station is about a mile east of the business section of the town, in the southwest part of the cemetery. It is in a row of young locust trees on the west side of the driveway, about 60 feet from the south fence, 28.2 feet from the southwest corner of the foundation stone of the Jones monument, and 59.5 feet from the southwest corner of the foundation stone of the Day monument. The station is marked by a sandstone post 8 by 10 by 22 inches, with a bronze magnetic station mark in the top, which projects about 2 inches above the ground. The following true bearings were determined:

	°	′	
Spire on top of cupola of red barn (mark)	28	21.4	west of south
Spire on white church	87	26.2	west of south
Flagpole on cupola of high-school building	78	42.1	west of north
Flagpole on cupola of county courthouse	55	47.9	west of north

Goldendale, Klickitat County.—The station is in the grounds of the city waterworks, about one-half mile north of the town. It is about 300 feet west of the lower reservoir, 121.5 feet north of the cemetery fence, 30 feet south of the road, and 285 feet from the monument in cemetery bearing the name Lester V. Thomas. The station is marked by a bronze magnetic station mark in the top of a cement block 1 foot in diameter and 2 feet deep, set flush with the surface of the ground. The following true bearings were determined:

	°	′	
Presbyterian Church spire	12	08.6	west of south
Spire of county house (mark)	13	55.3	west of south
Smokestack on lumber mill	19	22.0	west of south
Smokestack	52	13.0	west of south
Stone in cemetery, Lester V. Thomas	57	28.9	west of south

The country about Goldendale is underlaid with basalt and the rock is strongly magnetic.

Kalama, Cowlitz County.—The station is on Sandy Island or Jenner Island, about three-fourths mile west of Kalama. It is about 250 feet north of the landing on the west side of the island and about 30 feet west of the path. The island is the property of T. L. Jenner, and this part of the island is used for pasture purposes. The station is marked by a bronze station mark set in the top of a 6 by 6 inch oak post projecting 6 inches above a cement pier which is 2 feet deep in the ground and 15 inches in diameter. The cement is filled in flush with the surface of the ground. The following true bearings were determined:

	°	′	
Cross on Catholic Church, Kalama (mark)	81	00.8	east of south
Tank near refrigerator, Goble	67	53.4	west of north
Southwest corner of refrigerating plant, Goble	64	22.3	west of north
Steeple in Goble, Red Men's Hall	56	28.3	west of north

An auxiliary station was made about 500 feet southeast, 21 feet north of a fence, and 11 feet northwest of a post in line with the magnetic station and the southwest corner of the refrigerator plant at Goble.

A second auxiliary station was made about 275 feet from the primary station on the true bearing 3° 39.1′ west of south.

Lacrosse, Whitman County.—The station is in unimproved property belonging to Mr. Shobe, about 480 feet west of the railroad. It is exactly in line with the flagstaff on the tower of the high-school building and the point on the railroad water tank. It is also in line with the fence between the property of Charles Benner and the street, and 94.4 feet distant from the southwest corner of Benner's property. The station is unmarked.

Montesano, Chehalis County.—The station is about a mile west of Montesano in an unplatted portion of the city cemetery, 88 feet from the north fence. The station is marked by a bronze marker in the top of a cement post set flush with the ground and running 2.2 feet into the ground. The following true bearings were determined:

	°	′	
Clock face on county courthouse	84	00.1	east of north
Monument on south side of cemetery (Chalmers monument)	27	40.6	east of south
Red granite stone in cemetery (Carlton monument)	24	47.2	east of south
West end of red roof of house	0	16.4	west of south
Bell tower of Alder Grove School (mark)	22	41.1	west of south

A cement post, with a copper nail embedded in the cement to mark the exact spot and lettered MM 357.9, with an arrow pointing north, was set 357.9 feet due south to mark the meridian line. It is 54 feet south of the northwest corner of the platted portion of the cemetery and 34.9 feet from a copper tack in the northwest corner of the tool house.

Ritzville, Adams County.—The station is about 2½ miles east of the town on the grounds of the district No. 21 school. It is 32.6 feet from the south fence, 23.6 feet from the west fence, and 82.1 feet from the southwest corner of the schoolhouse. The station is marked by a cement block, 8 by 9 by 24 inches, with the bronze station mark in the top, and set flush with the surface of the ground. The following true bearings were determined:

	°	′	
Weather vane on barn (mark)	15	59.1	east of south
Windmill on ranch	29	22.9	west of south
Windmill	46	01.1	west of south
Point on top of water tank	60	57.3	west of south

WASHINGTON—continued.

Seattle, King County.—The new station of 1910 was reoccupied. It is in the eastern part of the grounds of the State University. It is 208.6 feet northwest from the northwest corner of the girls' dormitory and 198.7 feet southeast from the southeast corner of the boys' dormitory. The station is marked by a granite post 48 inches long, 8 by 8 inches on top and 12 by 12 inches at the bottom, projecting 14 inches above the ground, and lettered U. S. C. & G. S., 1903. The following true bearings were determined in 1910:

	°	′	
Center of rod at top of north gable window on Denny Hall (mark)	80	31.8	west of north
Top of southwest edge of white water tank	41	41.0	west of north
Central point at top of roof of California Building	10	42.9	west of south

A new station was established in Seward Park, formerly known as Bailey Peninsula, on the west side and about 1,000 feet from the entrance to the park. It is on a bluff above the path near an outcrop of rock, about 10 feet from the edge of the bluff, and 64 feet from a large spruce which has been scarred by fire on the north side. In marking the spot a hole was dug about 1 foot in diameter and 2 feet deep and filled with fresh concrete. The bronze marker was placed flush with the concrete and the surrounding ground. The following true bearings were determined:

	°	′	
South gable of house with green roof on boulevard	71	41.0	west of north
Flagpole in margin of lake (mark)	32	20.6	west of north
Steeple of Plymouth Church, beyond lake	28	26.3	west of north
Dome on horizon	23	23.1	west of north
South dome on Church of the Immaculate Conception	31	03.7	west of north

Shelton, Mason County.—The station is on the city baseball and fair grounds, about 1 mile west from the center of the town and 1½ miles from the water front. It is 31.5 feet from the north fence, 125 feet from the northwest corner of the stock sheds, 33.5 feet from third base of the baseball diamond, and 236 feet from the northeast corner of the exhibition building. The station is marked by a cement block 24 inches long and 8 inches in diameter and level with the ground and having a bronze marker in the top. The following true bearings were determined:

	°	′	
South side of top of chimney on house in distance	85	40.8	east of south
North side of chimney east of stock sheds	76	02.4	east of south
Gable of house on top of hill in distance (not cupola) (mark)	5	00.9	west of south
South side of base of flagpole on southeast corner of exhibition building	55	28.6	west of south

South Bend, Pacific County.—The station is about one-half mile from the city hall on Knob Hill, about 500 feet east of the house of Mr. Reischman. Observations were made over a city monument, marking the west end of the compromise line between South Bend Addition and the Corrected Plat of South Bend, which was set about 1891. The post is of sandstone and is about 6 by 6 inches at the top and projects about 8 inches above the ground. The stone was drilled and the C. & G. S. magnetic station mark set in the top. The following true bearings were determined:

	°	′	
Gable of barn across river	37	21.1	west of north
Smokestack on shingle mill	88	47.7	east of north
Spire of yellow church	89	07.1	east of north
Gable of white house (mark)	88	32.2	east of south
North spire of large hotel	84	58.6	east of south

Spokane, Spokane County.—The station of 1906 was reoccupied. It is on an unused portion of ground in the northwest part of Fairmount Cemetery and 315.6 feet from the board fence bounding the cemetery on the north. The station is marked by a sandstone post 4 by 6 by 26 inches, projecting about a foot above the surface of the ground. (Rocks prevented post being planted deeper.) The post is lettered on top U. S. C. & G. S., 1906, and has a hole in the center to mark the exact spot. The following true bearings were determined in 1906:

	°	′	
South corner of smelter brick chimney	45	38.9	west of north
Pinnacle of east water tank (mark)	5	46.6	west of south
North corner smelter brick chimney	45	13.3	west of north

Walla Walla, Walla Walla County.—The station of 1905 was reoccupied. It is located about 1½ miles west of the center of town, on the military reservation at Fort Walla Walla. It is south of the center of the reservation and a little north of west of the barracks. It is 319.5 feet north of the northwest corner of the ammunition house and 313.4 feet southwest of the center of the sill on the central door of the storehouse next to the quartermaster's office. The station is marked by a sandstone post, 6 by 6 by 24 inches, set flush with the ground and lettered U. S. C. & G. S., 1905. The following true bearings were determined in 1905:

	°	′	
Spire of Cumberland Presbyterian Church (mark)	51	09.3	east of north
Cross on steeple of Catholic Church	46	06.6	east of north
Flagpole on cupola of courthouse	44	22.0	east of north
Small triangular cupola	49	29.4	east of north

WISCONSIN.

Appleton, Outagamie County.—The station of 1908 was reoccupied. It is in the grounds inclosed by the race track at the fairgrounds. It is almost on a line west of the center of College Avenue. The station is 73.4 feet north and slightly east of the north one of two hickory trees within the inclosure, and 185 feet west from the inside fence of the race track. The station is marked by a white marble post 4 by 6 by 24 inches, set flush with the surface of the ground and lettered U. S. C. & G. S., 1908. The following true bearings were determined in 1908 and 1913:

	° ′
Cupola on house south of station (mark)	6 24.3 west of south
Cupola on barn, fairgrounds	47 57.8 east of south
Flagpole on band stand	26 01.6 east of north
Flagpole on judges' stand	20 48.7 east of north
Top of St. Joseph's church steeple	86 43.7 east of south

Burlington, Racine County.—The station is about 1 mile south of the town, near the Chicago, Milwaukee & St. Paul Railway station, in a small pasture belonging to Emery Brown. It is 127.5 feet from the north fence, 119.7 feet north-northwest of a large basswood tree, and 159.3 feet east and a little north from a small apple tree. The station is not marked.

Colby, Marathon County.—The station is in a pasture belonging to Mr. Young, who lives one-fourth mile east of the railroad track along the street crossing the track north of the passenger depot. The pasture is on the north side of the street and directly back of Mr. Young's house. The station is 62 feet from the wire fence bounding the pasture on the south and 58 feet from the fence bounding the pasture on the west. The station is unmarked.

Durand, Pepin County.—The station is about 1 mile northeast from town, in the northwest part of the Forest Hill cemetery. It is about 300 feet south-southeast of the windmill and about 160 feet east of the Jones monument. The corners of the lots in the cemetery are marked by tile bearing the numbers of the lots. The station is placed in ground left for a roadway and opposite an alleyway, between lots 171, 170, 190, and 191. It is distant 7.6 feet from marker 171, 8 feet from 170, 3.8 feet from 190, and 3.5 feet from 191. It is marked by a bronze station mark set in the top of a cement post 8 by 10 by 27 inches set flush with the surface of the ground. The following true bearings were determined:

	° ′
White flagpole on courthouse (mark)	71 49.1 west of south
Black pole visible above tree line	76 27.0 west of south
Pole on roof of farmhouse	79 00.4 west of south
Urn-shaped point on Knapp monument	76 31.5 west of north

Genoa Junction, Walworth County.—The station is about one-half mile north of the town, in the grounds of the Hillside cemetery. It is directly in front of the soldiers' monument and 24.8 feet distant from the foundation block. It is 33.5 feet from the southeast corner of the foundation block of the Nathan G. Harrison monument and 38.3 feet from the northeast corner of the Deignan monument. The station is marked by a bronze station mark embedded in the top of a concrete block 12 by 12 by 16 inches, buried flush with the surface of the ground. The following true bearings were determined:

	° ′
Steeple of Methodist church	30 01.8 west of south
Flagpole on high school	29 40.4 west of south
Steeple of Congregational Church (mark)	43 18.7 west of south

La Crosse, La Crosse County.—The station of 1911 was reoccupied. The old station being no longer suitable for future observations, owing to some improvements now in progress in its immediate vicinity, a new station was established at a point on the north side of Myrick Park, at a distance of about four-tenths of a mile north and a little east from the old station. The station is about one-fourth mile north of the car track and east of the city pumping station, about 500 feet back of the small greenhouse, close to the edge of the bank overlooking the marsh, and 57.7 feet from a large oak tree on the bank of the marsh. It is marked by a stone, 8 by 8 by 36 inches, with a cross in the center and lettered U. S. C. & G. S., and buried nearly flush with the surface. The following true bearings were determined:

	° ′
Cross on church spire (mark)	46 58.8 west of north
Point of first electric-line tower	81 37.3 west of north
South edge of chimney on pumping station	76 29.4 west of south
East edge of chimney of greenhouse	10 26.3 west of south

Lake Geneva, Walworth County.—The station is about one-half mile distant from the lake, a little east of the railroad, on the grounds of the Oakwood Sanitarium. The station is northwest of the sanitarium, on the center of a glacial ridge running down toward the small creek which connects Lake Geneva and a pond. It is 87.9 feet from a large oak bearing a "No trespassing" sign. Another large oak stands 54.7 feet north-northwest from the station. The station is not marked.

WISCONSIN—continued.

Marshfield, Wood County.—The station is about 1 mile southeast of the city hall in the city fairgrounds, inside the race track. It is 42 feet from the west fence, and 55 feet from the ditch which crosses the grounds inside the track. The station lies south of this ditch and northeast of the gate to the inside of the track. It is marked by a bronze station mark embedded in the top of a sandstone monument 6 by 6 by 38 inches, buried flush with the surface. The following true bearings were determined:

	°	′	
Spire on Zion Church (mark)	13	13.4	west of north
Church spire	15	50.0	east of north
Point on water-tower roof	48	12.4	east of north

Milwaukee, Milwaukee County.—The old station in Lake Park was reoccupied. It is near North Point lighthouse, 74.25 feet from the stone at northwest corner of light keeper's grounds, and 76.5 feet from the northwest corner of the light keeper's tool house. The station is marked by a marble post 6 by 6 by 21 inches, lettered U. S. C. & G. S. The following true bearings were determined in 1908:

	°	′	
Flagpole on street car pavilion (mark)	00	14.2	east of north
Tower of Mr. Middleton's residence	21	03.2	west of north

Racine, Racine County.—The station is in the grounds of the Racine College, about 1 mile south of the business section of Racine, and near the lake shore. It is about 300 feet north-northeast of the northeast corner of the college building, and 28.9 feet from the east fence. A large oak tree stands 20.6 feet east and a little north; another stands 38.8 feet west and a little north. The station is marked by a bronze station mark embedded in the top of a Bedford stone 6 by 8 by 22 inches, sunk flush with the surface of the ground. The following true bearings were determined:

	°	′	
Top of North Point lighthouse (mark)	16	00.9	east of north
Top of Racine Reef lighthouse (central point)	59	20.0	east of north
Point on roof of north side first main entrance to college building	38	54.1	west of south
Northwest corner of foundation of college building	51	01.5	west of south

Stanley, Chippewa County.—The station is about one-half mile southeast of town in the grounds of the city cemetery. It is in the southern edge of one of the east and west roadways, about 25 feet from the road which leads north from the west gate. It is 53.8 feet from the northwest corner of the Bernier monument and 44 feet from the northwest corner of the Haase monument. It is marked by a bronze station mark set in concrete, flush with the surface of the ground. The following true bearings were determined:

	°	′	
Flagpole on high school	29	31.8	west of north
Ball on top of city water tank (mark)	36	51.3	west of north
Steeple of North Side Norwegian Church	41	25.3	west of north
Steeple of South Side Norwegian Church	52	30.2	west of north

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